

FIGURE 1A

GCTCAGCAGC	AGGTGCGGGC	CGCAGCCCCA	TCCAGCCCCG	GCCCCGATG	CCGTCCGCGG		60
GCCCCGCTG	AGCTGCGGCC	TCCGCGCGCG	GGCGGGCCTG	GGGACGGCGG	GGCCATGCGC		120
GCGCTGCCCT	AACG	ATG	CCG	CCC	GCC	GCG	170
	Met	Pro	Pro	Ala	Ala	Pro	
	1				5		
						Arg	10
CTG	GGC	CTG	GGC	CTG	TGG	CTC	218
Leu	Gly	Leu	Gly	Leu	Trp	Leu	
	15					20	
						25	
GGC	TGC	GGG	CCC	TGC	GAG	CCC	266
Gly	Cys	Gly	Pro	Cys	Glu	Pro	
	30				35		
						40	
GCC	GCC	TGC	CGC	GTC	AAC	TGC	314
Ala	Ala	Cys	Arg	Val	Asn	Cys	
	45				50		
						55	
CCC	GCG	CTG	CGC	ATC	CCC	GCG	362
Pro	Ala	Leu	Arg	Ile	Pro	Ala	
				65			
						70	
AAC	CTG	CTC	CGG	GCG	CTG	GAC	410
Asn	Leu	Leu	Arg	Ala	Leu	Asp	
			80			85	
						90	
CTG	GCA	GAG	CTG	GAT	ATA	AGC	458
Leu	Ala	Glu	Leu	Asp	Ile	Ser	
		95				100	
						105	
GGA	ATA	TTT	GCT	AAT	TTA	TTT	506
Gly	Ile	Phe	Ala	Asn	Leu	Phe	
	110					115	
						120	
AAC	CCG	TTT	GAG	TGT	GAC	TGT	554
Asn	Pro	Phe	Glu	Cys	Asp	Cys	
					130		
						135	
						140	
GAG	GAG	CAG	CAG	GTG	CGG	GTG	602
Glu	Glu	Gln	Gln	Val	Arg	Val	
				145			
						150	
GGG	CCT	GGC	TCC	CTG	GCT	GGC	650
Gly	Pro	Gly	Ser	Leu	Ala	Gly	
			160				
						165	
						170	
GAC	AGT	GGC	TGT	GGT	GAG	GAG	698
Asp	Ser	Gly	Cys	Gly	Glu	Glu	
		175				180	
						185	
TCA	GGC	ACC	GTG	GCA	GCA	GTG	746
Ser	Gly	Thr	Val	Ala	Ala	Val	
						195	
						200	
CTT	CAG	CCA	GAG	GCC	TGC	AGC	794
Leu	Gln	Pro	Glu	Ala	Cys	Ser	
					210		
						215	
						220	
CTC	GCA	GCC	CTC	TCG	GAG	CAG	843
Leu	Ala	Ala	Leu	Ser	Glu	Gln	
				225			
						230	
						235	
CCC	TCC	AGT	GCC	TCC	TTT	GCC	890
Pro	Ser	Ser	Ala	Ser	Phe	Ala	
			240				
						245	
						250	

substituted

FIGURE 1B

CCA	CCT	GCC	ACC	CCC	ACC	Thr	Cys	TGT	AGG	GGC	CCC	ACC	CTC	CTC	CAG	CAC	GTC	938
Pro	Pro	Pro	Ala	Pro	Pro			Arg	Arg	Gly	Pro	Thr	Leu	Leu	Gln	His	Val	
	255							260						265				
TTC	CCT	GCC	TCC	CCA	GGG	GCC	ACC	CTG	GTG	GGG	CCC	CCC	CAC	GGA	CCT	CTG	986	
Phe	Pro	Ala	Ser	Pro	Gly	Ala	Thr	Leu	Val	Gly	Pro	Pro	His	Gly	Pro	Leu		
	270					275						280						
GCC	TCT	GGC	CAG	CTA	GCA	GCC	TTC	CAC	ATC	GCT	GCC	CCG	CTC	CCT	GTC		1034	
Ala	Ser	Gly	Gln	Leu	Ala	Ala	Phe	His	Ile	Ala	Ala	Pro	Leu	Pro	Val			
	285				290					295					300			
ACT	GCC	ACA	CGC	TGG	GAC	TTC	GGA	GAC	GGC	TCC	GCC	GAG	GTG	GAT	GCC		1082	
Thr	Ala	Thr	Arg	Trp	Asp	Phe	Gly	Asp	Gly	Ser	Ala	Glu	Val	Asp	Ala			
				305					310					315				
GCT	GGG	CCG	GCT	GCC	TCG	CAT	CGC	TAT	GTG	CTG	CCT	GGG	CGC	TAT	CAC		1130	
Ala	Gly	Pro	Ala	Ala	Ser	His	Arg	Tyr	Val	Leu	Pro	Gly	Arg	Tyr	His			
			320					325					330					
GTG	ACG	GCC	GTG	CTG	GCC	CTG	GGG	GCC	GGC	TCA	GCC	CTG	CTG	GGG	ACA		1178	
Val	Thr	Ala	Val	Leu	Ala	Leu	Gly	Ala	Gly	Ser	Ala	Leu	Leu	Gly	Thr			
		335					340					345						
GAC	GTG	CAG	GTG	GAA	GCG	GCA	CCT	GCC	GCC	CTG	GAG	CTC	GTG	TGC	CCG		1226	
Asp	Val	Gln	Val	Glu	Ala	Ala	Pro	Ala	Ala	Leu	Glu	Leu	Val	Cys	Pro			
	350					355					360							
TCC	TCG	GTG	CAG	AGT	GAC	GAG	AGC	CTC	GAC	CTC	AGC	ATC	CAG	AAC	CGC		1274	
Ser	Ser	Val	Gln	Ser	Asp	Glu	Ser	Leu	Asp	Leu	Ser	Ile	Gln	Asn	Arg			
	365				370					375					380			
GGT	GGT	TCA	GGC	CTG	GAG	GCC	GCC	TAC	AGC	ATC	GTG	GCC	CTG	GGC	GAG		1322	
Gly	Gly	Ser	Gly	Leu	Glu	Ala	Ala	Tyr	Ser	Ile	Val	Ala	Leu	Gly	Glu			
				385					390					395				
GAG	CCG	GCC	CGA	GCG	GTG	CAC	CCG	CTC	TGC	CCC	TCG	GAC	ACG	GAG	ATC		1370	
Glu	Pro	Ala	Arg	Ala	Val	His	Pro	Leu	Cys	Pro	Ser	Asp	Thr	Glu	Ile			
			400					405					410					
TTC	CCT	GGC	AAC	GGG	CAC	TGC	TAC	CGC	CTG	GTG	GTG	GAG	AAG	GCG	GCC		1418	
Phe	Pro	Gly	Asn	Gly	His	Cys	Tyr	Arg	Leu	Val	Val	Glu	Lys	Ala	Ala			
		415					420					425						
TGG	CTG	CAG	GCG	CAG	GAG	CAG	TGT	CAG	GCC	TGG	GCC	GGG	GCC	GCC	CTG		1466	
Trp	Leu	Gln	Ala	Gln	Glu	Gln	Cys	Gln	Ala	Trp	Ala	Gly	Ala	Ala	Leu			
	430					435					440							
GCA	ATG	GTG	GAC	AGT	CCC	GCC	GTG	CAG	CGC	TTC	CTG	GTC	TCC	CGG	GTC		1514	
Ala	Met	Val	Asp	Ser	Pro	Ala	Val	Gln	Arg	Phe	Leu	Val	Ser	Arg	Val			
	445				450					455					460			
ACC	AGG	TGC	CTA	GAC	GTG	TGG	ATC	GGC	TTC	TCG	ACT	GTG	CAG	GGG	GTG		1562	
Thr	Arg	Cys	Leu	Asp	Val	Trp	Ile	Gly	Phe	Ser	Thr	Val	Gln	Gly	Val			
				465					470					475				
GAG	GTG	GGC	CCA	GCG	CCG	CAG	GGC	GAG	GCC	TTC	AGC	CTG	GAG	AGC	TGC		1610	
Glu	Val	Gly	Pro	Ala	Pro	Gln	Gly	Glu	Ala	Phe	Ser	Leu	Glu	Ser	Cys			
			480					485					490					

FIGURE 1C'

CAG Gln	AAC Asn	TGG Trp 495	CTG Leu	CCC Pro	GGG Gly	GAG Glu	CCA Pro 500	CAC His	CCA Pro	GCC Ala	ACA Thr	GCC Ala 505	GAG Glu	CAC His	TGC Cys	1658
GTC Val	CGG Arg 510	CTC Leu	GGG Gly	CCC Pro	ACC Thr	GGG Gly 515	TGG Trp	TGT Cys	AAC Asn	ACC Thr	GAC Asp 520	CTG Leu	TGC Cys	TCA Ser	GCG Ala	1706
CCG Pro 525	CAC His	AGC Ser	TAC Tyr	GTC Val	TGC Cys 530	GAG Glu	CTG Leu	CAG Gln	CCC Pro	GGA Gly 535	GGC Gly	CCA Pro	GTG Val	CAG Gln	GAT Asp 540	1754
GCC Ala	GAG Glu	AAC Asn	CTC Leu	CTC Leu 545	GTG Val	GGA Gly	GCG Ala	CCC Pro	AGT Ser 550	GGG Gly	GAC Asp	CTG Leu	CAG Gln	GGA Gly 555	CCC Pro	1802
CTG Leu	ACG Thr	CCT Pro	CTG Leu 560	GCA Ala	CAG Gln	CAG Gln	GAC Asp	GGC Gly 565	CTC Leu	TCA Ser	GCC Ala	CCG Pro	CAC His	GAG Glu	CCC Pro	1850
GTG Val	GAG Glu	GTC Val 575	ATG Met	GTA Val	TTC Phe	CCG Pro	GGC Gly 580	CTG Leu	CGT Arg	CTG Leu	AGC Ser	CGT Arg 585	GAA Glu	GCC Ala	TTC Phe	1898
CTC Leu 590	ACC Thr	ACG Thr	GCC Ala	GAA Glu	TTT Phe	GGG Gly 595	ACC Thr	CAG Gln	GAG Glu	CTC Leu	CGG Arg 600	CGG Arg	CCC Pro	GCC Ala	CAG Gln	1946
CTG Leu 605	CGG Arg	CTG Leu	CAG Gln	GTG Val	TAC Tyr 610	CGG Arg	CTC Leu	CTC Leu	AGC Ser	ACA Thr 615	GCA Ala	GGG Gly	ACC Thr	CCG Pro	GAG Glu 620	1994
AAC Asn	GGC Gly	AGC Ser	GAG Glu	CCT Pro 625	GAG Glu	AGC Ser	AGG Arg	TCC Ser	CCG Pro 630	GAC Asp	AAC Asn	AGG Arg	ACC Thr	CAG Gln 635	CTG Leu	2042
GCC Ala	CCC Pro	GCG Ala	TGC Cys 640	ATG Met	CCA Pro	GGG Gly	GGA Gly	CGC Arg 645	TGG Trp	TGC Cys	CCT Pro	GGA Gly	GCC Ala 650	AAC Asn	ATC Ile	2090
TGC Cys	TTG Leu	CCG Pro 655	CTG Leu	GAC Asp	GCC Ala	TCC Ser	TGC Cys 660	CAC His	CCC Pro	CAG Gln	GCC Ala	TGC Cys 665	GCC Ala	AAT Asn	GGC Gly	2138
TGC Cys 670	ACG Thr	TCA Ser	GGG Gly	CCA Pro	GGG Gly	CTA Leu 675	CCC Pro	GGG Gly	GCC Ala	CCC Pro	TAT Tyr 680	GCG Ala	CTA Leu	TGG Trp	AGA Arg	2186
GAG Glu 685	TTC Phe	CTC Leu	TTC Phe	TCC Ser	GTT Val 690	CCC Pro	GCG Ala	GGG Gly	CCC Pro	CCC Pro 695	GCG Ala	CAG Gln	TAC Tyr	TCG Ser	GTC Val 700	2234
ACC Thr	CTC Leu	CAC His	GGC Gly	CAG Gln 705	GAT Asp	GTC Val	CTC Leu	ATG Met	CTC Leu 710	CCT Pro	GGT Gly	GAC Asp	CTC Leu	GTT Val 715	GGC Gly	2282
TTG Leu	CAG Gln	CAC His	GAC Asp 720	GCT Ala	GGC Gly	CCT Pro	GGC Gly 725	GCC Ala	CTC Leu	CTG Leu	CAC His	TGC Cys	TCG Ser 730	CCG Pro	GCT Ala	2330

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CCT Pro	GGC Gly	CAC His 735	CCT Pro	GCT Gly	CCC Pro	CGG Arg	GCC Ala 740	CCG Pro	TAC Tyr	CTC Leu	TCC Ser	GCC Ala 745	AAC Asn	GCC Ala	TCG Ser	2378
TCA Ser	TGG Trp 750	CTG Leu	CCC Pro	CAC His	TTG Leu	CCA Pro 755	GCC Ala	CAG Gln	CTG Leu	GAG Glu	GGC Gly 760	ACT Thr	TGG Trp	GCC Ala	TGC Cys	2426
CCT Pro 765	GCC Ala	TGT Cys	GCC Ala	CTG Leu	CGG Arg 770	CTG Leu	CTT Leu	GCA Ala	GCC Ala	ACG Thr 775	GAA Glu	CAG Gln	CTC Leu	ACC Thr	GTG Val 780	2474
CTG Leu	CTG Leu	GGC Gly	TTG Leu	AGG Arg 785	CCC Pro	AAC Asn	CCT Pro	GGA Gly	CTG Leu 790	CGG Arg	CTG Leu	CCT Pro	GGG Gly	CGC Arg 795	TAT Tyr	2522
GAG Glu	GTC Val	CGG Arg 800	GCA Ala	GAG Glu	GTG Val	GGC Gly	AAT Asn 805	GGC Gly	GTG Val	TCC Ser	AGG Arg	CAC His 810	AAC Asn	CTC Leu	TCC Ser	2570
TGC Cys	AGC Ser	TTT Phe 815	GAC Asp	GTG Val	GTC Val	TCC Ser	CCA Pro 820	GTG Val	GCT Ala	GGG Gly	CTG Leu 825	CGG Arg	GTC Val	ATC Ile	TAC Tyr	2618
CCT Pro 830	GCC Ala	CCC Pro	CGC Arg	GAC Asp	GGC Gly	CGC Arg 835	CTC Leu	TAC Tyr	GTG Val	CCC Pro	ACC Thr 840	AAC Asn	GGC Gly	TCA Ser	GCC Ala	2666
TTG Leu 845	GTG Val	CTC Leu	CAG Gln	GTG Val	GAC Asp 850	TCT Ser	GGT Gly	GCC Ala	AAC Asn	GCC Ala 855	ACG Thr	GCC Ala	ACG Thr	GCT Ala	CGC Arg 860	2714
TGG Trp	CCT Pro	GGG Gly	GGC Gly	AGT Ser 865	GTC Val	AGC Ser	GCC Ala	CGC Arg	TTT Phe 870	GAG Glu	AAT Asn	GTC Val	TGC Cys	CCT Pro 875	GCC Ala	2762
CTG Leu	GTG Val	GCC Ala	ACC Thr 880	TTC Phe	GTG Val	CCC Pro	GGC Gly	TGC Cys 885	CCC Pro	TGG Trp	GAG Glu	ACC Thr	AAC Asn 890	GAT Asp	ACC Thr	2810
CTG Leu	TTC Phe	TCA Ser 895	GTG Val	GTA Val	GCA Ala	CTG Leu	CCG Pro 900	TGG Trp	CTC Leu	AGT Ser	GAG Glu	GGG Gly 905	GAG Glu	CAC His	GTG Val	2858
GTG Val 910	GAC Asp	GTG Val	GTG Val	GTG Val	GAA Glu 915	AAC Asn	AGC Ser	GCC Ala	AGC Ser	CGG Arg	GCC Ala 920	AAC Asn	CTC Leu	AGC Ser	CTG Leu	2906
CGG Arg 925	GTG Val	ACG Thr	GCG Ala	GAG Glu	GAG Glu 930	CCC Pro	ATC Ile	TGT Cys	GGC Gly	CTC Leu 935	CGC Arg	GCC Ala	ACG Thr	CCC Pro	AGC Ser 940	2954
CCC Pro	GAG Glu	GCC Ala	CGT Arg	GTA Val 945	CTG Leu	CAG Gln	GGA Gly	GTC Val	CTA Leu 950	GTG Val	AGG Arg	TAC Tyr	AGC Ser	CCC Pro 955	GTG Val	3002
GTG Val	GAG Glu	GCC Ala	GGC Gly 960	TCG Ser	GAC Asp	ATG Met	GTC Val	TTT Phe 965	CGG Arg	TGG Trp	ACC Thr	ATC Ile	AAC Asn 970	GAC Asp	AAG Lys	3050

FIGURE 1E

CAG TCC CTG ACC TTC CAG AAC GTG GTC TTC AAT GTC ATT TAT CAG AGC Gln Ser Leu Thr Phe Gln Asn Val Val Phe Asn Val Ile Tyr Gln Ser	3098
975 980 985	
GCG GCG GTC TTC AAG CTC TCA CTG ACG GCC TCC AAC CAC GTG AGC AAC Ala Ala Val Phe Lys Leu Ser Leu Thr Ala Ser Asn His Val Ser Asn	3146
990 995 1000	
GTC ACC GTG AAC TAC AAC GTA ACC GTG GAG CGG ATG AAC AGG ATG CAG Val Thr Val Asn Tyr Asn Val Thr Val Glu Arg Met Asn Arg Met Gln	3194
1005 1010 1015 1020	
GGT CTG CAG GTC TCC ACA GTG CCG GCC GTG CTG TCC CCC AAT GCC ACG Gly Leu Gln Val Ser Thr Val Pro Ala Val Leu Ser Pro Asn Ala Thr	3242
1025 1030 1035	
CTA GCA CTG ACG GCG GGC GTG CTG GTG GAC TCG GCC GTG GAG GTG GCC Leu Ala Leu Thr Ala Gly Val Leu Val Asp Ser Ala Val Glu Val Ala	3290
1040 1045 1050	
TTC CTG TGG ACC TTT GGG GAT GGG GAG CAG GCC CTC CAC CAG TTC CAG Phe Leu Trp Thr Phe Gly Asp Gly Glu Gln Ala Leu His Gln Phe Gln	3338
1055 1060 1065	
CCT CCG TAC AAC GAG TCC TTC CCG GTT CCA GAC CCC TCG GTG GCC CAG Pro Pro Tyr Asn Glu Ser Phe Pro Val Pro Asp Pro Ser Val Ala Gln	3386
1070 1075 1080	
GTG CTG GTG GAG CAC AAT GTC ATG CAC ACC TAC GCT GCC CCA GGT GAG Val Leu Val Glu His Asn Val Met His Thr Tyr Ala Ala Pro Gly Glu	3434
1085 1090 1095 1100	
TAC CTC CTG ACC GTG CTG GCA TCT AAT GCC TTC GAG AAC CTG ACG CAG Tyr Leu Leu Thr Val Leu Ala Ser Asn Ala Phe Glu Asn Leu Thr Gln	3482
1105 1110 1115	
CAG GTG CCT GTG AGC GTG CGC GCC TCC CTG CCC TCC GTG GCT GTG GGT Gln Val Pro Val Ser Val Arg Ala Ser Leu Pro Ser Val Ala Val Gly	3530
1120 1125 1130	
GTG AGT GAC GGC GTC CTG GTG GCC GGC CGG CCC GTC ACC TTC TAC CCG Val Ser Asp Gly Val Leu Val Ala Gly Arg Pro Val Thr Phe Tyr Pro	3578
1135 1140 1145	
CAC CCG CTG CCC TCG CCT GGG GGT GTT CTT TAC ACG TGG GAC TTC GGG His Pro Leu Pro Ser Pro Gly Gly Val Leu Tyr Thr Trp Asp Phe Gly	3626
1150 1155 1160	
GAC GGC TCC CCT GTC CTG ACC CAG AGC CAG CCG GCT GCC AAC CAC ACC Asp Gly Ser Pro Val Leu Thr Gln Ser Gln Pro Ala Ala Asn His Thr	3674
1165 1170 1175 1180	
TAT GCC TCG AGG GGC ACC TAC CAC GTG CGC CTG GAG GTC AAC AAC ACG Tyr Ala Ser Arg Gly Thr Tyr His Val Arg Leu Glu Val Asn Asn Thr	3722
1185 1190 1195	
GTG AGC GGT GCG GCG GCC CAG GCG GAT GTG CGC GTC TTT GAG GAG CTC Val Ser Gly Ala Ala Ala Gln Ala Asp Val Arg Val Phe Glu Glu Leu	3770
1200 1205 1210	

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FIGURE 1F

CGC GGA CTC AGC GTG GAC ATG AGC CTG GCC GTG GAG CAG GGC GCC CCC	3818
Arg Gly Leu Ser Val Asp Met Ser Leu Ala Val Glu Gln Gly Ala Pro	
1215 1220 1225	
GTG GTG GTC AGC GCC GCG GTG CAG ACG GGC GAC AAC ATC ACG TGG ACC	3866
Val Val Val Ser Ala Ala Val Gln Thr Gly Asp Asn Ile Thr Trp Thr	
1230 1235 1240	
TTC GAC ATG GGG GAC GGC ACC GTG CTG TCG GGC CCG GAG GCA ACA GTG	3914
Phe Asp Met Gly Asp Gly Thr Val Leu Ser Gly Pro Glu Ala Thr Val	
1245 1250 1255 1260	
GAG CAT GTG TAC CTG CGG GCA CAG AAC TGC ACA GTG ACC GTG GGT GCG	3962
Glu His Val Tyr Leu Arg Ala Gln Asn Cys Thr Val Thr Val Gly Ala	
1265 1270 1275	
GCC AGC CCC GCC GGC CAC CTG GCC CGG AGC CTG CAC GTG CTG GTC TTC	4010
Ala Ser Pro Ala Gly His Leu Ala Arg Ser Leu His Val Leu Val Phe	
1280 1285 1290	
GTC CTG GAG GTG CTG CGC GTT GAA CCC GCC GCC TGC ATC CCC ACG CAG	4058
Val Leu Glu Val Leu Arg Val Glu Pro Ala Ala Cys Ile Pro Thr Gln	
1295 1300 1305	
CCT GAC GCG CGG CTC ACG GCC TAC GTC ACC GGG AAC CCG GCC CAC TAC	4106
Pro Asp Ala Arg Leu Thr Ala Tyr Val Thr Gly Asn Pro Ala His Tyr	
1310 1315 1320	
CTC TTC GAC TGG ACC TTC GGG GAT GGC TCC TCC AAC ACG ACC GTG CGG	4154
Leu Phe Asp Trp Thr Phe Gly Asp Gly Ser Ser Asn Thr Thr Val Arg	
1325 1330 1335 1340	
GGG TGC CCG ACG GTG ACA CAC AAC TTC ACG CGG AGC GGC ACG TTC CCC	4202
Gly Cys Pro Thr Val Thr His Asn Phe Thr Arg Ser Gly Thr Phe Pro	
1345 1350 1355	
CTG GCG CTG GTG CTG TCC AGC CGC GTG AAC AGG GCG CAT TAC TTC ACC	4250
Leu Ala Leu Val Leu Ser Ser Arg Val Asn Arg Ala His Tyr Phe Thr	
1360 1365 1370	
AGC ATC TGC GTG GAG CCA GAG GTG GGC AAC GTC ACC CTG CAG CCA GAG	4298
Ser Ile Cys Val Glu Pro Glu Val Gly Asn Val Thr Leu Gln Pro Glu	
1375 1380 1385	
AGG CAG TTT GTG CAG CTC GGG GAC GAG GCC TGG CTG GTG GCA TGT GCC	4346
Arg Gln Phe Val Gln Leu Gly Asp Glu Ala Trp Leu Val Ala Cys Ala	
1390 1395 1400	
TGG CCC CCG TTC CCC TAC CGC TAC ACC TGG GAC TTT GGC ACC GAG GAA	4394
Trp Pro Pro Phe Pro Tyr Arg Tyr Thr Trp Asp Phe Gly Thr Glu Glu	
1405 1410 1415 1420	
GCC GCC CCC ACC CGT GCC AGG GGC CCT GAG GTG ACG TTC ATC TAC CGA	4442
Ala Ala Pro Thr Arg Ala Arg Gly Pro Glu Val Thr Phe Ile Tyr Arg	
1425 1430 1435	
GAC CCA GGC TCC TAT CTT GTG ACA GTC ACC GCG TCC AAC AAC ATC TCT	4490
Asp Pro Gly Ser Tyr Leu Val Thr Val Thr Ala Ser Asn Asn Ile Ser	
1440 1445 1450	

FIGURE 1F

GCT Ala	GCC Ala	AAT Asn	GAC Asp	TCA Ser	GCC Ala	CTG Leu	GTG Val	GAG Glu	GTG Val	CAG Gln	GCC Glu	CCC Pro	GTG Val	GTC Leu	GTC Val	4538
1455																
ACC Thr	AGC Ser	ATC Ile	AAG Lys	GTC Val	AAT Asn	GGC Gly	TCC Ser	CTT Leu	GGG Gly	CTG Leu	GAG Glu	CTG Leu	CAG Gln	CAG Gln	CCG Pro	4586
1470																
TAC Tyr	CTG Leu	TTC Phe	TCT Ser	GCT Ala	GTG Val	GGC Gly	CGT Arg	GGG Gly	CGC Arg	CCC Pro	GCC Ala	AGC Ser	TAC Tyr	CTG Leu	TGG Trp	4634
1485																
GAT Asp	CTG Leu	GGG Gly	GAC Asp	GGT Gly	GGG Gly	TGG Trp	CTC Leu	GAG Glu	GGT Gly	CCG Pro	GAG Glu	GTC Val	ACC Thr	CAC His	GCT Ala	4682
1505																
TAC Tyr	AAC Asn	AGC Ser	ACA Thr	GGT Gly	GAC Asp	TTC Phe	ACC Thr	GTT Val	AGG Arg	GTG Val	GCC Ala	GGC Gly	TGG Trp	AAT Asn	GAG Glu	4730
1520																
GTG Val	AGC Ser	CGC Arg	AGC Ser	GAG Glu	GCC Ala	TGG Trp	CTC Leu	AAT Asn	GTG Val	ACG Thr	GTG Val	AAG Lys	CGG Arg	CGC Arg	GTG Val	4778
1535																
CGG Arg	GGG Gly	CTC Leu	GTC Val	GTC Val	AAT Asn	GCA Ala	AGC Ser	CGC Arg	ACG Thr	GTG Val	GTG Val	CCC Pro	CTG Leu	AAT Asn	GGG Gly	4826
1550																
AGC Ser	GTG Val	AGC Ser	TTC Phe	AGC Ser	ACG Thr	TCG Ser	CTG Leu	GAG Glu	GCC Ala	GGC Gly	AGT Ser	GAT Asp	GTG Val	CGC Arg	TAT Tyr	4874
1565																
TCC Ser	TGG Trp	GTG Val	CTC Leu	TGT Cys	GAC Asp	CGC Arg	TGC Cys	ACG Thr	CCC Pro	ATC Ile	CCT Pro	GGG Gly	GGT Gly	CCT Pro	ACC Thr	4922
1585																
ATC Ile	TCT Ser	TAC Tyr	ACC Thr	TTC Phe	CGC Arg	TCC Ser	GTG Val	GGC Gly	ACC Thr	TTC Phe	AAT Asn	ATC Ile	ATC Ile	GTC Val	ACG Thr	4970
1600																
GCT Ala	GAG Glu	AAC Asn	GAG Glu	GTG Val	GGC Gly	TCC Ser	GCC Ala	CAG Gln	GAC Asp	AGC Ser	ATC Ile	TTC Phe	GTC Val	TAT Tyr	GTC Val	5018
1615																
CTG Leu	CAG Gln	CTC Leu	ATA Ile	GAG Glu	GGG Gly	CTG Leu	CAG Gln	GTG Val	GTG Val	GGC Gly	GGT Gly	GGC Gly	CGC Arg	TAC Tyr	TTC Phe	5066
1630																
CCC Pro	ACC Thr	AAC Asn	CAC His	ACG Thr	GTA Val	CAG Gln	CTG Leu	CAG Gln	GCC Ala	GTG Val	GTT Val	AGG Arg	GAT Asp	GGC Gly	ACC Thr	5114
1645																
AAC Asn	GTC Val	TCC Ser	TAC Tyr	AGC Ser	TGG Trp	ACT Thr	GCC Ala	TGG Trp	AGG Arg	GAC Asp	AGG Arg	GGC Gly	CCG Pro	GCC Ala	CTG Leu	5162
1665																
GCC Ala	GGC Gly	AGC Ser	GGC Gly	AAA Lys	GGC Gly	TTC Phe	TCG Ser	CTC Leu	ACC Thr	GTG Val	CTC Leu	GAG Glu	GCC Ala	GGC Gly	ACC Thr	5210
1680																

FIGURE 1H

TAC	CAT	GTG	CAG	CTG	CGG	GCC	ACC	AAC	ATG	CTG	GGC	AGC	GCC	TGG	GCC	5258
Tyr	His	Val	Gln	Leu	Arg	Ala	Thr	Asn	Met	Leu	Gly	Ser	Ala	Trp	Ala	
		1695					1700					1705				
GAC	TGC	ACC	ATG	GAC	TTC	GTG	GAG	CCT	GTG	GGG	TGG	CTG	ATG	GTG	GCC	5306
Asp	Cys	Thr	Met	Asp	Phe	Val	Glu	Pro	Val	Gly	Trp	Leu	Met	Val	Ala	
	1710					1715					1720					
GCC	TCC	CCG	AAC	CCA	GCT	GCC	GTC	AAC	ACA	AGC	GTC	ACC	CTC	AGT	GCC	5354
Ala	Ser	Pro	Asn	Pro	Ala	Ala	Val	Asn	Thr	Ser	Val	Thr	Leu	Ser	Ala	
1725					1730					1735					1740	
GAG	CTG	GCT	GGT	GGC	AGT	GGT	GTC	GTA	TAC	ACT	TGG	TCC	TTG	GAG	GAG	5402
Glu	Leu	Ala	Gly	Gly	Ser	Gly	Val	Val	Tyr	Thr	Trp	Ser	Leu	Glu	Glu	
				1745					1750					1755		
GGG	CTG	AGC	TGG	GAG	ACC	TCC	GAG	CCA	TTT	ACC	ACC	CAT	AGC	TTC	CCC	5450
Gly	Leu	Ser	Trp	Glu	Thr	Ser	Glu	Pro	Phe	Thr	Thr	His	Ser	Phe	Pro	
			1760					1765					1770			
ACA	CCC	GGC	CTG	CAC	TTG	GTC	ACC	ATG	ACG	GCA	GGG	AAC	CCG	CTG	GGC	5498
Thr	Pro	Gly	Leu	His	Leu	Val	Thr	Met	Thr	Ala	Gly	Asn	Pro	Leu	Gly	
		1775					1780					1785				
TCA	GCC	AAC	GCC	ACC	GTG	GAA	GTG	GAT	GTG	CAG	GTG	CCT	GTG	AGT	GGC	5546
Ser	Ala	Asn	Ala	Thr	Val	Glu	Val	Asp	Val	Gln	Val	Pro	Val	Ser	Gly	
	1790					1795					1800					
CTC	AGC	ATC	AGG	GCC	AGC	GAG	CCC	GGA	GGC	AGC	TTC	GTG	GCG	GCC	GGG	5594
Leu	Ser	Ile	Arg	Ala	Ser	Glu	Pro	Gly	Gly	Ser	Phe	Val	Ala	Ala	Gly	
1805					1810					1815					1820	
TCC	TCT	GTG	CCC	TTT	TGG	GGG	CAG	CTG	GCC	ACG	GGC	ACC	AAT	GTG	AGC	5642
Ser	Ser	Val	Pro	Phe	Trp	Gly	Gln	Leu	Ala	Thr	Gly	Thr	Asn	Val	Ser	
				1825					1830					1835		
TGG	TGC	TGG	GCT	GTG	CCC	GGC	GGC	AGC	AGC	AAG	CGT	GGC	CCT	CAT	GTC	5690
Trp	Cys	Trp	Ala	Val	Pro	Gly	Gly	Ser	Ser	Lys	Arg	Gly	Pro	His	Val	
			1840					1845					1850			
ACC	ATG	GTC	TTC	CCG	GAT	GCT	GGC	ACC	TTC	TCC	ATC	CGG	CTC	AAT	GCC	5738
Thr	Met	Val	Phe	Pro	Asp	Ala	Gly	Thr	Phe	Ser	Ile	Arg	Leu	Asn	Ala	
		1855					1860					1865				
TCC	AAC	GCA	GTC	AGC	TGG	GTC	TCA	GCC	ACG	TAC	AAC	CTC	ACG	GCG	GAG	5786
Ser	Asn	Ala	Val	Ser	Trp	Val	Ser	Ala	Thr	Tyr	Asn	Leu	Thr	Ala	Glu	
	1870					1875					1880					
GAG	CCC	ATC	GTG	GGC	CTG	GTG	CTG	TGG	GCC	AGC	AGC	AAG	GTG	GTG	GCG	5834
Glu	Pro	Ile	Val	Gly	Leu	Val	Leu	Trp	Ala	Ser	Ser	Lys	Val	Val	Ala	
1885					1890					1895					1900	
CCC	GGG	CAG	CTG	GTC	CAT	TTT	CAG	ATC	CTG	CTG	GCT	GCC	GGC	TCA	GCT	5882
Pro	Gly	Gln	Leu	Val	His	Phe	Gln	Ile	Leu	Leu	Ala	Ala	Gly	Ser	Ala	
				1905					1910					1915		
GTC	ACC	TTC	CGC	CTG	CAG	GTC	GGC	GGG	GCC	AAC	CCC	GAG	GTG	CTC	CCC	5930
Val	Thr	Phe	Arg	Leu	Gln	Val	Gly	Gly	Ala	Asn	Pro	Glu	Val	Leu	Pro	
			1920				1925						1930			

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FIGURE 11

GGG	CCC	CGT	TTC	TCC	CAC	AGC	TTC	CCC	CGC	GTC	GGA	GAC	CAC	GTG	GTG	5978
Gly	Pro	Arg	Phe	Ser	His	Ser	Phe	Pro	Arg	Val	Gly	Asp	His	Val	Val	
		1935					1940					1945				
AGC	GTG	CGG	GGC	AAA	AAC	CAC	GTG	AGC	TGG	GCC	CAG	GCG	CAG	GTG	CGC	6026
Ser	Val	Arg	Gly	Lys	Asn	His	Val	Ser	Trp	Ala	Gln	Ala	Gln	Val	Arg	
	1950					1955					1960					
ATC	GTG	GTG	CTG	GAG	GCC	GTG	AGT	GGG	CTG	CAG	GTG	CCC	AAC	TGC	TGC	6074
Ile	Val	Val	Leu	Glu	Ala	Val	Ser	Gly	Leu	Gln	Val	Pro	Asn	Cys	Cys	
1965						1970				1975					1980	
GAG	CCT	GGC	ATC	GCC	ACG	GGC	ACT	GAG	AGG	AAC	TTC	ACA	GCC	CGC	GTG	6122
Glu	Pro	Gly	Ile	Ala	Thr	Gly	Thr	Glu	Arg	Asn	Phe	Thr	Ala	Arg	Val	
				1985					1990					1995		
CAG	CGC	GGC	TCT	CGG	GTC	GCC	TAC	GCC	TGG	TAC	TTC	TCG	CTG	CAG	AAG	6170
Gln	Arg	Gly	Ser	Arg	Val	Ala	Tyr	Ala	Trp	Tyr	Phe	Ser	Leu	Gln	Lys	
			2000					2005					2010			
GTC	CAG	GGC	GAC	TCG	CTG	GTC	ATC	CTG	TCG	GGC	CGC	GAC	GTC	ACC	TAC	6218
Val	Gln	Gly	Asp	Ser	Leu	Val	Ile	Leu	Ser	Gly	Arg	Asp	Val	Thr	Tyr	
		2015					2020					2025				
ACG	CCC	GTG	GCC	GCG	GGG	CTG	TTG	GAG	ATC	CAG	GTG	CGC	GCC	TTC	AAC	6266
Thr	Pro	Val	Ala	Ala	Gly	Leu	Leu	Glu	Ile	Gln	Val	Arg	Ala	Phe	Asn	
	2030					2035					2040					
GCC	CTG	GGC	AGT	GAG	AAC	CGC	ACG	CTG	GTG	CTG	GAG	GTT	CAG	GAC	GCC	6314
Ala	Leu	Gly	Ser	Glu	Asn	Arg	Thr	Leu	Val	Leu	Glu	Val	Gln	Asp	Ala	
2045					2050					2055					2060	
GTC	CAG	TAT	GTG	GCC	CTG	CAG	AGC	GGC	CCC	TGC	TTC	ACC	AAC	CGC	TCG	6362
Val	Gln	Tyr	Val	Ala	Leu	Gln	Ser	Gly	Pro	Cys	Phe	Thr	Asn	Arg	Ser	
				2065					2070					2075		
GCG	CAG	TTT	GAG	GCC	GCC	ACC	AGC	CCC	AGC	CCC	CGG	CGT	GTG	GCC	TAC	6410
Ala	Gln	Phe	Glu	Ala	Ala	Thr	Ser	Pro	Ser	Pro	Arg	Arg	Val	Ala	Tyr	
			2080					2085					2090			
CAC	TGG	GAC	TTT	GGG	GAT	GGG	TCG	CCA	GGG	CAG	GAC	ACA	GAT	GAG	CCC	6458
His	Trp	Asp	Phe	Gly	Asp	Gly	Ser	Pro	Gly	Gln	Asp	Thr	Asp	Glu	Pro	
		2095					2100					2105				
AGG	GCC	GAG	CAC	TCC	TAC	CTG	AGG	CCT	GGG	GAC	TAC	CGC	GTG	CAG	GTG	6506
Arg	Ala	Glu	His	Ser	Tyr	Leu	Arg	Pro	Gly	Asp	Tyr	Arg	Val	Gln	Val	
	2110					2115					2120					
AAC	GCC	TCC	AAC	CTG	GTG	AGC	TTC	TTC	GTG	GCG	CAG	GCC	ACG	GTG	ACC	6554
Asn	Ala	Ser	Asn	Leu	Val	Ser	Phe	Phe	Val	Ala	Gln	Ala	Thr	Val	Thr	
2125					2130					2135					2140	
GTC	CAG	GTG	CTG	GCC	TGC	CGG	GAG	CCG	GAG	GTG	GAC	GTG	GTC	CTG	CCC	6602
Val	Gln	Val	Leu	Ala	Cys	Arg	Glu	Pro	Glu	Val	Asp	Val	Val	Leu	Pro	
				2145					2150					2155		
CTG	CAG	GTG	CTG	ATG	CGG	CGA	TCA	CAG	CGC	AAC	TAC	TTG	GAG	GCC	CAC	6650
Leu	Gln	Val	Leu	Met	Arg	Arg	Ser	Gln	Arg	Asn	Tyr	Leu	Glu	Ala	His	
			2160					2165					2170			

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FIGURE 1J

GTT	GAC	CTG	CGC	GAC	TGC	GTC	ACC	TAC	CAG	ACT	GAG	TAC	CGC	TGG	GAG	6698
Val	Asp	Leu	Arg	Asp	Cys	Val	Thr	Tyr	Gln	Thr	Glu	Tyr	Arg	Trp	Glu	
		2175						2180					2185			
GTG	TAT	CGC	ACC	GCC	AGC	TGC	CAG	CGG	CCG	GGG	CGC	CCA	GCG	CGT	GTG	6746
Val	Tyr	Arg	Thr	Ala	Ser	Cys	Gln	Arg	Pro	Gly	Arg	Pro	Ala	Arg	Val	
	2190					2195					2200					
GCC	CTG	CCC	GGC	GTG	GAC	GTG	AGC	CGG	CCT	CGG	CTG	GTG	CTG	CCG	CGG	6794
Ala	Leu	Pro	Gly	Val	Asp	Val	Ser	Arg	Pro	Arg	Leu	Val	Leu	Pro	Arg	
2205					2210					2215					2220	
CTG	GCG	CTG	CCT	GTG	GGG	CAC	TAC	TGC	TTT	GTG	TTT	GTC	GTG	TCA	TTT	6842
Leu	Ala	Leu	Pro	Val	Gly	His	Tyr	Cys	Phe	Val	Phe	Val	Val	Ser	Phe	
				2225					2230					2235		
GGG	GAC	ACG	CCA	CTG	ACA	CAG	AGC	ATC	CAG	GCC	AAT	GTG	ACG	GTG	GCC	6890
Gly	Asp	Thr	Pro	Leu	Thr	Gln	Ser	Ile	Gln	Ala	Asn	Val	Thr	Val	Ala	
			2240					2245					2250			
CCC	GAG	CGC	CTG	GTG	CCC	ATC	ATT	GAG	GGT	GGC	TCA	TAC	CGC	GTG	TGG	6938
Pro	Glu	Arg	Leu	Val	Pro	Ile	Ile	Glu	Gly	Gly	Ser	Tyr	Arg	Val	Trp	
		2255					2260					2265				
TCA	GAC	ACA	CGG	GAC	CTG	GTG	CTG	GAT	GGG	AGC	GAG	TCC	TAC	GAC	CCC	6986
Ser	Asp	Thr	Arg	Asp	Leu	Val	Leu	Asp	Gly	Ser	Glu	Ser	Tyr	Asp	Pro	
	2270					2275					2280					
AAC	CTG	GAG	GAC	GGC	GAC	CAG	ACG	CCG	CTC	AGT	TTC	CAC	TGG	GCC	TGT	7034
Asn	Leu	Glu	Asp	Gly	Asp	Gln	Thr	Pro	Leu	Ser	Phe	His	Trp	Ala	Cys	
2285					2290					2295					2300	
GTG	GCT	TCG	ACA	CAG	AGG	GAG	GCT	GGC	GGG	TGT	GCG	CTG	AAC	TTT	GGG	7082
Val	Ala	Ser	Thr	Gln	Arg	Glu	Ala	Gly	Gly	Cys	Ala	Leu	Asn	Phe	Gly	
				2305				2310						2315		
CCC	CGC	GGG	AGC	AGC	ACG	GTC	ACC	ATT	CCA	CGG	GAG	CGG	CTG	GCG	GCT	7130
Pro	Arg	Gly	Ser	Ser	Thr	Val	Thr	Ile	Pro	Arg	Glu	Arg	Leu	Ala	Ala	
			2320					2325					2330			
GGC	GTG	GAG	TAC	ACC	TTC	AGC	CTG	ACC	GTG	TGG	AAG	GCC	GGC	CGC	AAG	7178
Gly	Val	Glu	Tyr	Thr	Phe	Ser	Leu	Thr	Val	Trp	Lys	Ala	Gly	Arg	Lys	
		2335					2340				2345					
GAG	GAG	GCC	ACC	AAC	CAG	ACG	GTG	CTG	ATC	CGG	AGT	GGC	CGG	GTG	CCC	7226
Glu	Glu	Ala	Thr	Asn	Gln	Thr	Val	Leu	Ile	Arg	Ser	Gly	Arg	Val	Pro	
	2350					2355					2360					
ATT	GTG	TCC	TTG	GAG	TGT	GTG	TCC	TGC	AAG	GCA	CAG	GCC	GTG	TAC	GAA	7274
Ile	Val	Ser	Leu	Glu	Cys	Val	Ser	Cys	Lys	Ala	Gln	Ala	Val	Tyr	Glu	
2365					2370				2375						2380	
GTG	AGC	CGC	AGC	TCC	TAC	GTG	TAC	TTG	GAG	GGC	CGC	TGC	CTC	AAT	TGC	7322
Val	Ser	Arg	Ser	Ser	Tyr	Val	Tyr	Leu	Glu	Gly	Arg	Cys	Leu	Asn	Cys	
				2385					2390					2395		
AGC	AGC	GGC	TCC	AAG	CGA	GGG	CGG	TGG	GCT	GCA	CGT	ACG	TTC	AGC	AAC	7370
Ser	Ser	Gly	Ser	Lys	Arg	Gly	Arg	Trp	Ala	Ala	Arg	Thr	Phe	Ser	Asn	
			2400					2405					2410			

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FIGURE 1K

AAG	ACG	CTG	GTG	CTG	GAT	GAG	ACC	ACC	ACA	TCC	ACG	GGC	AGT	GCA	GGC	7418
Lys	Thr	Leu	Val	Leu	Asp	Glu	Thr	Thr	Thr	Ser	Thr	Gly	Ser	Ala	Gly	
		2415					2420					2425				
ATG	CGA	CTG	GTG	CTG	CGG	CGG	GGC	GTG	CTG	CGG	GAC	GGC	GAG	GGA	TAC	7466
Met	Arg	Leu	Val	Leu	Arg	Arg	Gly	Val	Leu	Arg	Asp	Gly	Glu	Gly	Tyr	
	2430					2435					2440					
ACC	TTC	ACG	CTC	ACG	GTG	CTG	GGC	CGC	TCT	GGC	GAG	GAG	GAG	GGC	TGC	7514
Thr	Phe	Thr	Leu	Thr	Val	Leu	Gly	Arg	Ser	Gly	Glu	Glu	Glu	Gly	Cys	
2445					2450					2455					2460	
GCC	TCC	ATC	CGC	CTG	TCC	CCC	AAC	CGC	CCG	CCG	CTG	GGG	GGC	TCT	TGC	7562
Ala	Ser	Ile	Arg	Leu	Ser	Pro	Asn	Arg	Pro	Pro	Leu	Gly	Gly	Ser	Cys	
				2465					2470					2475		
CGC	CTC	TTC	CCA	CTG	GGC	GCT	GTG	CAC	GCC	CTC	ACC	ACC	AAG	GTG	CAC	7610
Arg	Leu	Phe	Pro	Leu	Gly	Ala	Val	His	Ala	Leu	Thr	Thr	Lys	Val	His	
			2480					2485					2490			
TTC	GAA	TGC	ACG	GGC	TGG	CAT	GAC	GCG	GAG	GAT	GCT	GGC	GCC	CCG	CTG	7658
Phe	Glu	Cys	Thr	Gly	Trp	His	Asp	Ala	Glu	Asp	Ala	Gly	Ala	Pro	Leu	
	2495						2500					2505				
GTG	TAC	GCC	CTG	CTG	CTG	CGG	CGC	TGT	CGC	CAG	GGC	CAC	TGC	GAG	GAG	7706
Val	Tyr	Ala	Leu	Leu	Leu	Arg	Arg	Cys	Arg	Gln	Gly	His	Cys	Glu	Glu	
	2510					2515					2520					
TTC	TGT	GTC	TAC	AAG	GGC	AGC	CTC	TCC	AGC	TAC	GGA	GCC	GTG	CTG	CCC	7754
Phe	Cys	Val	Tyr	Lys	Gly	Ser	Leu	Ser	Ser	Tyr	Gly	Ala	Val	Leu	Pro	
2525					2530					2535					2540	
CCG	GGT	TTC	AGG	CCA	CAC	TTC	GAG	GTG	GGC	CTG	GCC	GTG	GTG	GTG	CAG	7802
Pro	Gly	Phe	Arg	Pro	His	Phe	Glu	Val	Gly	Leu	Ala	Val	Val	Val	Gln	
				2545					2550					2555		
GAC	CAG	CTG	GGA	GCC	GCT	GTG	GTC	GCC	CTC	AAC	AGG	TCT	TTG	GCC	ATC	7850
Asp	Gln	Leu	Gly	Ala	Ala	Val	Val	Ala	Leu	Asn	Arg	Ser	Leu	Ala	Ile	
			2560					2565					2570			
ACC	CTC	CCA	GAG	CCC	AAC	GGC	AGC	GCA	ACG	GGG	CTC	ACA	GTC	TGG	CTG	7898
Thr	Leu	Pro	Glu	Pro	Asn	Gly	Ser	Ala	Thr	Gly	Leu	Thr	Val	Trp	Leu	
		2575					2580					2585				
CAC	GGG	CTC	ACC	GCT	AGT	GTG	CTC	CCA	GGG	CTG	CTG	CGG	CAG	GCC	GAT	7946
His	Gly	Leu	Thr	Ala	Ser	Val	Leu	Pro	Gly	Leu	Arg	Gln	Ala	Asp		
	2590					2595					2600					
CCC	CAG	CAC	GTC	ATC	GAG	TAC	TCG	TTG	GCC	CTG	GTC	ACC	GTG	CTG	AAC	7994
Pro	Gln	His	Val	Ile	Glu	Tyr	Ser	Leu	Ala	Leu	Val	Thr	Val	Leu	Asn	
2605					2610					2615					2620	
GAG	TAC	GAG	CGG	GCC	CTG	GAC	GTG	GCG	GCA	GAG	CCC	AAG	CAC	GAG	CGG	8042
Glu	Tyr	Glu	Arg	Ala	Leu	Asp	Val	Ala	Ala	Glu	Pro	Lys	His	Glu	Arg	
				2625				2630						2635		
CAG	CAC	CGA	GCC	CAG	ATA	CGC	AAG	AAC	ATC	ACG	GAG	ACT	CTG	GTG	TCC	8090
Gln	His	Arg	Ala	Gln	Ile	Arg	Lys	Asn	Ile	Thr	Glu	Thr	Leu	Val	Ser	
			2640					2645					2650			

FIGURE 1K

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FIGURE 1L

CTG AGG GTC CAC ACT GTG GAT GAC ATC CAG CAG ATC GCT GCT GCG CTG Leu Arg Val His Thr Val Asp Asp Ile Gln Gln Ile Ala Ala Ala Leu 2655 2660 2665	8138
GCC CAG TGC ATG GGG CCC AGC AGG GAG CTC GTA TGC CGC TCG TGC CTG Ala Gln Cys Met Gly Pro Ser Arg Glu Leu Val Cys Arg Ser Cys Leu 2670 2675 2680	8186
AAG CAG ACG CTG CAC AAG CTG GAG GCC ATG ATG CTC ATC CTG CAG GCA Lys Gln Thr Leu His Lys Leu Glu Ala Met Met Leu Ile Leu Gln Ala 2685 2690 2695 2700	8234
GAG ACC ACC GCG GGC ACC GTG ACG CCC ACC GCC ATC GGA GAC AGC ATC Glu Thr Thr Ala Gly Thr Val Thr Pro Thr Ala Ile Gly Asp Ser Ile 2705 2710 2715	8282
CTC AAC ATC ACA GGA GAC CTC ATC CAC CTG GCC AGC TCG GAC GTG CGG Leu Asn Ile Thr Gly Asp Leu Ile His Leu Ala Ser Ser Asp Val Arg 2720 2725 2730	8330
GCA CCA CAG CCC TCA GAG CTG GGA GCC GAG TCA CCA TCT CGG ATG GTG Ala Pro Gln Pro Ser Glu Leu Gly Ala Glu Ser Pro Ser Arg Met Val 2735 2740 2745	8378
GCG TCC CAG GCC TAC AAC CTG ACC TCT GCC CTC ATG CGC ATC CTC ATG Ala Ser Gln Ala Tyr Asn Leu Thr Ser Ala Leu Met Arg Ile Leu Met 2750 2755 2760	8426
CGC TCC CGC GTG CTC AAC GAG GAG CCC CTG ACG CTG GCG GGC GAG GAG Arg Ser Arg Val Leu Asn Glu Glu Pro Leu Thr Leu Ala Gly Glu Glu 2765 2770 2775 2780	8474
ATC GTG GCC CAG GGC AAG CGC TCG GAC CCG CGG AGC CTG CTG TGC TAT Ile Val Ala Gln Gly Lys Arg Ser Asp Pro Arg Ser Leu Leu Cys Tyr 2785 2790 2795	8522
GGC GGC GCC CCA GGG CCT GGC TGC CAC TTC TCC ATC CCC GAG GCT TTC Gly Gly Ala Pro Gly Pro Gly Cys His Phe Ser Ile Pro Glu Ala Phe 2800 2805 2810	8570
AGC GGG GCC CTG GCC AAC CTC AGT GAC GTG GTG CAG CTC ATC TTT CTG Ser Gly Ala Leu Ala Asn Leu Ser Asp Val Val Gln Leu Ile Phe Leu 2815 2820 2825	8618
GTG GAC TCC AAT CCC TTT CCC TTT GGC TAT ATC AGC AAC TAC ACC GTC Val Asp Ser Asn Pro Phe Pro Phe Gly Tyr Ile Ser Asn Tyr Thr Val 2830 2835 2840	8666
TCC ACC AAG GTG GCC TCG ATG GCA TTC CAG ACA CAG GCC GGC GCC CAG Ser Thr Lys Val Ala Ser Met Ala Phe Gln Thr Gln Ala Gly Ala Gln 2845 2850 2855 2860	8714
ATC CCC ATC GAG CGG CTG GCC TCA GAG CGC GCC ATC ACC GTG AAG GTG Ile Pro Ile Glu Arg Leu Ala Ser Glu Arg Ala Ile Thr Val Lys Val 2865 2870 2875	8762
CCC AAC AAC TCG GAC TGG GCT GCC CGG GGC CAC CGC AGC TCC GCC AAC Pro Asn Asn Ser Asp Trp Ala Ala Arg Gly His Arg Ser Ser Ala Asn 2880 2885 2890	8810

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FIGURE 1M

TCC	GCC	AAC	TCC	GTT	GTG	GTC	CAG	CCC	CAG	GCC	TCC	GTC	GGT	GCT	GTG	8858
Ser	Ala	Asn	Ser	Val	Val	Val	Gln	Pro	Gln	Ala	Ser	Val	Gly	Ala	Val	
		2895					2900					2905				
GTC	ACC	CTG	GAC	AGC	AGC	AAC	CCT	GCG	GCC	GGG	CTG	CAT	CTG	CAG	CTC	8906
Val	Thr	Leu	Asp	Ser	Ser	Asn	Pro	Ala	Ala	Gly	Leu	His	Leu	Gln	Leu	
		2910					2915					2920				
AAC	TAT	ACG	CTG	CTG	GAC	GGC	CAC	TAC	CTG	TCT	GAG	GAA	CCT	GAG	CCC	8954
Asn	Tyr	Thr	Leu	Leu	Asp	Gly	His	Tyr	Leu	Ser	Glu	Glu	Pro	Glu	Pro	
					2930						2935				2940	
TAC	CTG	GCA	GTC	TAC	CTA	CAC	TCG	GAG	CCC	CGG	CCC	AAT	GAG	CAC	AAC	9002
Tyr	Leu	Ala	Val	Tyr	Leu	His	Ser	Glu	Pro	Arg	Pro	Asn	Glu	His	Asn	
					2945					2950					2955	
TGC	TCG	GCT	AGC	AGG	AGG	ATC	CGC	CCA	GAG	TCA	CTC	CAG	GGT	GCT	GAC	9050
Cys	Ser	Ala	Ser	Arg	Arg	Ile	Arg	Pro	Glu	Ser	Leu	Gln	Gly	Ala	Asp	
			2960					2965					2970			
CAC	CGG	CCC	TAC	ACC	TTC	TTC	ATT	TCC	CCG	GGG	AGC	AGA	GAC	CCA	CGC	9098
His	Arg	Pro	Tyr	Thr	Phe	Phe	Ile	Ser	Pro	Gly	Ser	Arg	Asp	Pro	Ala	
		2975					2980					2985				
GGG	AGT	TAC	CAT	CTG	AAC	CTC	TCC	AGC	CAC	TTC	CGC	TGG	TCG	GCG	CTG	9146
Gly	Ser	Tyr	His	Leu	Asn	Leu	Ser	Ser	His	Phe	Arg	Trp	Ser	Ala	Leu	
		2990				2995					3000					
CAG	GTG	TCC	GTG	GGC	CTG	TAC	ACG	TCC	CTG	TGC	CAG	TAC	TTC	AGC	GAG	9194
Gln	Val	Ser	Val	Gly	Leu	Tyr	Thr	Ser	Leu	Cys	Gln	Tyr	Phe	Ser	Glu	
					3010					3015					3020	
GAG	GAC	ATG	GTG	TGG	CGG	ACA	GAG	GGG	CTG	CTG	CCC	CTG	GAG	GAG	ACC	9242
Glu	Asp	Met	Val	Trp	Arg	Thr	Glu	Gly	Leu	Leu	Pro	Leu	Glu	Glu	Thr	
				3025					3030					3035		
TCG	CCC	CGC	CAG	GCC	GTC	TGC	CTC	ACC	CGC	CAC	CTC	ACC	GCC	TTC	GGC	9290
Ser	Pro	Arg	Gln	Ala	Val	Cys	Leu	Thr	Arg	His	Leu	Thr	Ala	Phe	Gly	
			3040					3045					3050			
GCC	AGC	CTC	TTC	GTG	CCC	CCA	AGC	CAT	GTC	CGC	TTT	GTG	TTT	CCT	GAG	9338
Ala	Ser	Leu	Phe	Val	Pro	Pro	Ser	His	Val	Arg	Phe	Val	Phe	Pro	Glu	
		3055					3060					3065				
CCG	ACA	GCG	GAT	GTA	AAC	TAC	ATC	GTC	ATG	CTG	ACA	TGT	GCT	GTG	TGC	9386
Pro	Thr	Ala	Asp	Val	Asn	Tyr	Ile	Val	Met	Leu	Thr	Cys	Ala	Val	Cys	
		3070				3075					3080					
CTG	GTG	ACC	TAC	ATG	GTC	ATG	GCC	GCC	ATC	CTG	CAC	AAG	CTG	GAC	CAG	9434
Leu	Val	Thr	Tyr	Met	Val	Met	Ala	Ala	Ile	Leu	His	Lys	Leu	Asp	Gln	
					3090					3095					3100	
TTG	GAT	GCC	AGC	CGG	GGC	CGC	GCC	ATC	CCT	TTC	TGT	GGG	CAG	CGG	GGC	9482
Leu	Asp	Ala	Ser	Arg	Gly	Arg	Ala	Ile	Pro	Phe	Cys	Gly	Gln	Arg	Gly	
				3105				3110					3115			
CGC	TTC	AAG	TAC	GAG	ATC	CTC	GTC	AAG	ACA	GGC	TGG	GGC	CGG	GGC	TCA	9530
Arg	Phe	Lys	Tyr	Glu	Ile	Leu	Val	Lys	Thr	Gly	Trp	Gly	Arg	Gly	Ser	
			3120				3125					3130				

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FIGURE 1N

GGT ACC ACG GCC CAC GTG GGC ATC ATG CTG TAT GGG GTG GAC AGC CGG	9578
Gly Thr Thr Ala His Val Gly Ile Met Leu Tyr Gly Val Asp Ser Arg	
3135 3140 3145	
AGC GGC CAC CGG CAC CTG GAC GGC GAC AGA GCC TTC CAC CGC AAC AGC	9626
Ser Gly His Arg His Leu Asp Gly Asp Arg Ala Phe His Arg Asn Ser	
3150 3155 3160	
CTG GAC ATC TTC CGG ATC GCC ACC CCG CAC AGC CTG GGT AGC GTG TGG	9674
Leu Asp Ile Phe Arg Ile Ala Thr Pro His Ser Leu Gly Ser Val Trp	
3165 3170 3175 3180	
AAG ATC CGA GTG TGG CAC GAC AAC AAA GGG CTC AGC CCT GCC TGG TTC	9722
Lys Ile Arg Val Trp His Asp Asn Lys Gly Leu Ser Pro Ala Trp Phe	
3185 3190 3195	
CTG CAG CAC GTC ATC GTC AGG GAC CTG CAG ACG GCA CGC AGC GCC TTC	9770
Leu Gln His Val Ile Val Arg Asp Leu Gln Thr Ala Arg Ser Ala Phe	
3200 3205 3210	
TTC CTG GTC AAT GAC TGG CTT TCG GTG GAG ACG GAG GCC AAC GGG GGC	9818
Phe Leu Val Asn Asp Trp Leu Ser Val Glu Thr Glu Ala Asn Gly Gly	
3215 3220 3225	
CTG GTG GAG AAG GAG GTG CTG GCC GCG AGC GAC GCA GCC CTT TTG CGC	9866
Leu Val Glu Lys Glu Val Leu Ala Ala Ser Asp Ala Ala Leu Leu Arg	
3230 3235 3240	
TTC CGG CGC CTG CTG GTG GCT GAG CTG CAG CGT GGC TTC TTT GAC AAG	9914
Phe Arg Arg Leu Leu Val Ala Glu Leu Gln Arg Gly Phe Phe Asp Lys	
3245 3250 3255 3260	
CAC ATC TGG CTC TCC ATA TGG GAC CGG CCG CCT CGT AGC CGT TTC ACT	9962
His Ile Trp Leu Ser Ile Trp Asp Arg Pro Pro Arg Ser Arg Phe Thr	
3265 3270 3275	
CGC ATC CAG AGG GCC ACC TGC TGC GTT CTC CTC ATC TGC CTC TTC CTG	10010
Arg Ile Gln Arg Ala Thr Cys Cys Val Leu Leu Ile Cys Leu Phe Leu	
3280 3285 3290	
GGC GCC AAC GCC GTG TGG TAC GGG GCT GTT GGC GAC TCT GCC TAC AGC	10058
Gly Ala Asn Ala Val Trp Tyr Gly Ala Val Gly Asp Ser Ala Tyr Ser	
3295 3300 3305	
ACG GGG CAT GTG TCC AGG CTG AGC CCG CTG AGC GTC GAC ACA GTC GCT	10106
Thr Gly His Val Ser Arg Leu Ser Pro Leu Ser Val Asp Thr Val Ala	
3310 3315 3320	
GTT GGC CTG GTG TCC AGC GTG GTT GTC TAT CCC GTC TAC CTG GCC ATC	10154
Val Gly Leu Val Ser Ser Val Val Val Tyr Pro Val Tyr Leu Ala Ile	
3325 3330 3335 3340	
CTT TTT CTC TTC CGG ATG TCC CGG AGC AAG GTG GCT GGG AGC CCG AGC	10202
Leu Phe Leu Phe Arg Met Ser Arg Ser Lys Val Ala Gly Ser Pro Ser	
3345 3350 3355	
CCC ACA CCT GCC GGG CAG CAG GTG CTG GAC ATC GAC AGC TGC CTG GAC	10250
Pro Thr Pro Ala Gly Gln Gln Val Leu Asp Ile Asp Ser Cys Leu Asp	
3360 3365 3370	

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FIGURE 10

TCG Ser	TCC Ser	GTG Val 3375	CTG Leu	GAC Asp	AGC Ser	TCC Ser	TTC Phe 3380	CTC Leu	ACG Thr	TTC Phe	TCA Ser	GGC Gly 3385	CTC Leu	CAC His	GCT Ala	10298
GAG Glu	GCC Ala 3390	TTT Phe	GTT Val	GGA Gly	CAG Gln	ATG Met 3395	AAG Lys	AGT Ser	GAC Asp	TTG Leu	TTT Phe 3400	CTG Leu	GAT Asp	GAT Asp	TCT Ser	10346
AAG Lys 3405	AGT Ser	CTG Leu	GTG Val	TGC Cys	TGG Trp 3410	CCC Pro	TCC Ser	GGC Gly	GAG Glu	GGA Gly 3415	ACG Thr	CTC Leu	AGT Ser	TGG Trp	CCG Pro 3420	10394
GAC Asp	CTG Leu	CTC Leu	AGT Ser	GAC Asp 3425	CCG Pro	TCC Ser	ATT Ile	GTG Val	GGT Gly 3430	AGC Ser	AAT Asn	CTG Leu	CGG Arg	CAG Gln 3435	CTG Leu	10442
GCA Ala	CGG Arg	GGC Gly	CAG Gln 3440	GCG Ala	GGC Gly	CAT His	GGG Gly	CTG Leu 3445	GGC Gly	CCA Pro	GAG Glu	GAG Glu	GAC Asp 3450	GGC Gly	TTC Phe	10490
TCC Ser	CTG Leu 3455	GCC Ala	AGC Ser	CCC Pro	TAC Tyr	TCG Ser	CCT Pro 3460	GCC Ala	AAA Lys	TCC Ser	TTC Phe	TCA Ser 3465	GCA Ala	TCA Ser	GAT Asp	10538
GAA Glu 3470	GAC Asp	CTG Leu	ATC Ile	CAG Gln	CAG Gln	GTC Val 3475	CTT Leu	GCC Ala	GAG Glu	GGG Gly	GTC Val 3480	AGC Ser	AGC Ser	CCA Pro	GCC Ala	10586
CCT Pro 3485	ACC Thr	CAA Gln	GAC Asp	ACC Thr	CAC His 3490	ATG Met	GAA Glu	ACG Thr	GAC Asp	CTG Leu 3495	CTC Leu	AGC Ser	AGC Ser	CTG Leu	TCC Ser 3500	10634
AGC Ser	ACT Thr	CCT Pro	GGG Gly	GAG Glu 3505	AAG Lys	ACA Thr	GAG Glu	ACG Thr	CTG Leu 3510	GCG Ala	CTG Leu	CAG Gln	AGG Arg	CTG Leu 3515	GGG Gly	10682
GAG Glu	CTG Leu	GGG Gly	CCA Pro 3520	CCC Pro	AGC Ser	CCA Pro	GGC Gly	CTG Leu 3525	AAC Asn	TGG Trp	GAA Glu	CAG Gln	CCC Pro 3530	CAG Gln	GCA Ala	10730
GCG Ala	AGG Arg	CTG Leu 3535	TCC Ser	AGG Arg	ACA Thr	GGA Gly	CTG Leu 3540	GTG Val	GAG Glu	GGT Gly	CTG Leu	CGG Arg 3545	AAG Lys	CGC Arg	CTG Leu	10778
CTG Leu	CCG Pro 3550	GCC Ala	TGG Trp	TGT Cys	GCC Ala	TCC Ser 3555	CTG Leu	GCC Ala	CAC His	GGG Gly	CTC Leu 3560	AGC Ser	CTG Leu	CTC Leu	CTG Leu	10826
GTG Val 3565	GCT Ala	GTG Val	GCT Ala	GTG Val	GCT Ala	GTC Val 3570	TCA Ser	GGG Gly	TGG Trp	GTG Val 3575	GGT Gly	GCG Ala	AGC Ser	TTC Phe	CCC Pro 3580	10874
CCG Pro	GGC Gly	GTG Val	AGT Ser	GTT Val 3585	GCG Ala	TGG Trp	CTC Leu	CTG Leu	TCC Ser 3590	AGC Ser	AGC Ser	GCC Ala	AGC Ser	TTC Phe 3595	CTG Leu	10922
GCC Ala	TCA Ser	TTC Phe 3600	CTC Leu	GGC Gly	TGG Trp	GAG Glu	CCA Pro	CTG Leu 3605	AAG Lys	GTC Val	TTG Leu	CTG Leu	GAA Glu 3610	GCC Ala	CTG Leu	10970

SECRET

FIGURE 1P

TAC	TTC	TCA	CTG	CTG	GCC	AAG	CGG	CTG	CAC	CCG	GAT	GAA	GAT	GAC	ACC	11018
Tyr	Phe	Ser	Leu	Val	Ala	Lys	Arg	Leu	His	Pro	Asp	Glu	Asp	Asp	Thr	
		3615					3620					3625				
CTG	GTA	GAG	AGC	CCG	GCT	GTG	ACG	CCT	GTG	AGC	GCA	CGT	GTG	CCC	CGC	11066
Leu	Val	Glu	Ser	Pro	Ala	Val	Thr	Pro	Val	Ser	Ala	Arg	Val	Pro	Arg	
	3630					3635					3640					
GTA	CGG	CCA	CCC	CAC	GGC	TTT	GCA	CTC	TTC	CTG	GCC	AAG	GAA	GAA	GCC	11114
Val	Arg	Pro	Pro	His	Gly	Phe	Ala	Leu	Phe	Leu	Ala	Lys	Glu	Glu	Ala	
3645					3650					3655					3660	
CGC	AAG	GTC	AAG	AGG	CTA	CAT	GGC	ATG	CTG	CGG	AGC	CTC	CTG	GTG	TAC	11162
Arg	Lys	Val	Lys	Arg	Leu	His	Gly	Met	Leu	Arg	Ser	Leu	Leu	Val	Tyr	
				3665					3670					3675		
ATG	CTT	TTT	CTG	CTG	GTG	ACC	CTG	CTG	GCC	AGC	TAT	GGG	GAT	GCC	TCA	11210
Met	Leu	Phe	Leu	Leu	Val	Thr	Leu	Leu	Ala	Ser	Tyr	Gly	Asp	Ala	Ser	
			3680					3685					3690			
TGC	CAT	GGG	CAC	GCC	TAC	CGT	CTG	CAA	AGC	GCC	ATC	AAG	CAG	GAG	CTG	11258
Cys	His	Gly	His	Ala	Tyr	Arg	Leu	Gln	Ser	Ala	Ile	Lys	Gln	Glu	Leu	
		3695					3700					3705				
CAC	AGC	CGG	GCC	TTC	CTG	GCC	ATC	ACG	CGG	TCT	GAG	GAG	CTC	TGG	CCA	11306
His	Ser	Arg	Ala	Phe	Leu	Ala	Ile	Thr	Arg	Ser	Glu	Glu	Leu	Trp	Pro	
	3710					3715					3720					
TGG	ATG	GCC	CAC	GTG	CTG	CTG	CCC	TAC	GTC	CAC	GGG	AAC	CAG	TCC	AGC	11354
Trp	Met	Ala	His	Val	Leu	Leu	Pro	Tyr	Val	His	Gly	Asn	Gln	Ser	Ser	
3725					3730				3735						3740	
CCA	GAG	CTG	GGG	CCC	CCA	CGG	CTG	CGG	CAG	GTG	CGG	CTG	CAG	GAA	GCA	11402
Pro	Glu	Leu	Gly	Pro	Pro	Arg	Leu	Arg	Gln	Val	Arg	Leu	Gln	Glu	Ala	
				3745					3750					3755		
CTC	TAC	CCA	GAC	CCT	CCC	GGC	CCC	AGG	GTC	CAC	ACG	TGC	TCG	GCC	GCA	11450
Leu	Tyr	Pro	Asp	Pro	Pro	Gly	Pro	Arg	Val	His	Thr	Cys	Ser	Ala	Ala	
			3760					3765					3770			
GGA	GGC	TTC	AGC	ACC	AGC	GAT	TAC	GAC	GTT	GGC	TGG	GAG	AGT	CCT	CAC	11498
Gly	Gly	Phe	Ser	Thr	Ser	Asp	Tyr	Asp	Val	Gly	Trp	Glu	Ser	Pro	His	
		3775					3780					3785				
AAT	GGC	TCG	GGG	ACG	TGG	GCC	TAT	TCA	GCG	CCG	GAT	CTG	CTG	GGG	GCA	11546
Asn	Gly	Ser	Gly	Thr	Trp	Ala	Tyr	Ser	Ala	Pro	Asp	Leu	Leu	Gly	Ala	
	3790					3795					3800					
TGG	TCC	TGG	GGC	TCC	TGT	GCC	GTG	TAT	GAC	AGC	GGG	GGC	TAC	GTG	CAG	11594
Trp	Ser	Trp	Gly	Ser	Cys	Ala	Val	T								

1. *Principles of Mathematics* (1903) by Giuseppe Peano. This work is a foundational text in the foundations of mathematics, introducing the concept of natural numbers and the principle of mathematical induction.

FIGURE 1Q

CTC	ACG	CGC	TAC	AGC	CGC	GCC	GTG	GGG	CTG	CAC	GCC	GCC	GTG	ACG	CTG	11738
Leu	Thr	Arg	Tyr	Ser	Pro	Ala	Val	Gly	Leu	His	Ala	Ala	Val	Thr	Leu	
		3855					3860						3865			
CGC	CTC	GAG	TTC	CCG	GCG	GCC	GGC	CGC	GCC	CTG	GCC	GCC	CTC	AGC	GTC	11786
Arg	Leu	Glu	Phe	Pro	Ala	Ala	Gly	Arg	Ala	Leu	Ala	Ala	Leu	Ser	Val	
		3870					3875						3880			
CGC	CCC	TTT	GCG	CTG	CGC	CGC	CTC	AGC	GCG	GGC	CTC	TCG	CTG	CCT	CTG	11834
Arg	Pro	Phe	Ala	Leu	Arg	Arg	Leu	Ser	Ala	Gly	Leu	Ser	Leu	Pro	Leu	
		3885					3890				3895				3900	
CTC	ACC	TCG	GTG	TGC	CTG	CTG	CTG	TTC	GCC	GTG	CAC	TTC	GCC	GTG	GCC	11882
Leu	Thr	Ser	Val	Cys	Leu	Leu	Leu	Phe	Ala	Val	His	Phe	Ala	Val	Ala	
				3905						3910					3915	
GAG	GCC	CGT	ACT	TGG	CAC	AGG	GAA	GGG	CGC	TGG	CGC	GTG	CTG	CGG	CTC	11930
Glu	Ala	Arg	Thr	Trp	His	Arg	Glu	Gly	Arg	Trp	Arg	Val	Leu	Arg	Leu	
			3920					3925						3930		
GGA	GCC	TGG	GCG	CGG	TGG	CTG	CTG	GTG	GCG	CTG	ACG	GCG	GCC	ACG	GCA	11978
Gly	Ala	Trp	Ala	Arg	Trp	Leu	Leu	Val	Ala	Leu	Thr	Ala	Ala	Thr	Ala	
		3935					3940					3945				
CTG	GTA	CGC	CTC	GCC	CAG	CTG	GGT	GCC	GCT	GAC	CGC	CAG	TGG	ACC	CGT	12026
Leu	Val	Arg	Leu	Ala	Gln	Leu	Gly	Ala	Ala	Asp	Arg	Gln	Trp	Thr	Arg	
		3950					3955					3960				
TTC	GTG	CGC	GGC	CGC	CCG	CGC	CGC	TTC	ACT	AGC	TTC	GAC	CAG	GTG	GCG	12074
Phe	Val	Arg	Gly	Arg	Pro	Arg	Arg	Phe	Thr	Ser	Phe	Asp	Gln	Val	Ala	
		3965				3970				3975					3980	
CAG	CTG	AGC	TCC	GCA	GCC	CGT	GGC	CTG	GCG	GCC	TCG	CTG	CTC	TTC	CTG	12122
Gln	Leu	Ser	Ser	Ala	Ala	Arg	Gly	Leu	Ala	Ala	Ser	Leu	Leu	Phe	Leu	
				3985					3990						3995	
CTT	TTG	GTC	AAG	GCT	GCC	CAG	CAG	CTA	CGC	TTC	GTG	CGC	CAG	TGG	TCC	12170
Leu	Leu	Val	Lys	Ala	Ala	Gln	Gln	Leu	Arg	Phe	Val	Arg	Gln	Trp	Ser	
			4000					4005					4010			
GTC	TTT	GGC	AAG	ACA	TTA	TGC	CGA	GCT	CTG	CCA	GAG	CTC	CTG	GGG	GTC	12218
Val	Phe	Gly	Lys	Thr	Leu	Cys	Arg	Ala	Leu	Pro	Glu	Leu	Leu	Gly	Val	
		4015					4020					4025				
ACC	TTG	GGC	CTG	GTG	GTG	CTC	GGG	GTA	GCC	TAC	GCC	CAG	CTG	GCC	ATC	12266
Thr	Leu	Gly	Leu	Val	Val	Leu	Gly	Val	Ala	Tyr	Ala	Gln	Leu	Ala	Ile	
		4030					4035				4040					
CTG	CTC	GTG	TCT	TCC	TGT	GTG	GAC	TCC	CTC	TGG	AGC	GTG	GCC	CAG	GCC	12314
Leu	Leu															

FIGURE 1R

CGG CTG TGG GGC GCC CTA CGG CTG GGG GCT GTT ATT CTC CGC TGG CGC	12458
Arg Leu Trp Gly Ala Leu Arg Leu Gly Ala Val Ile Leu Arg Trp Arg	
4095 4100 4105	
TAC CAC GCC TTG CGT GGA GAG CTG TAC CGG CCG GCC TGG GAG CCC CAG	12506
Tyr His Ala Leu Arg Gly Glu Leu Tyr Arg Pro Ala Trp Glu Pro Gln	
4110 4115 4120	
GAC TAC GAG ATG GTG GAG TTG TTC CTG CGC AGG CTG CGC CTC TGG ATG	12554
Asp Tyr Glu Met Val Glu Leu Phe Leu Arg Arg Leu Arg Leu Trp Met	
4125 4130 4135 4140	
GGC CTC AGC AAG GTC AAG GAG TTC CGC CAC AAA GTC CGC TTT GAA GGG	12602
Gly Leu Ser Lys Val Lys Glu Phe Arg His Lys Val Arg Phe Glu Gly	
4145 4150 4155	
ATG GAG CCG CTG CCC TCT CGC TCC TCC AGG GGC TCC AAG GTA TCC CCG	12650
Met Glu Pro Leu Pro Ser Arg Ser Ser Arg Gly Ser Lys Val Ser Pro	
4160 4165 4170	
GAT GTG CCC CCA CCC AGC GCT GGC TCC GAT GCC TCG CAC CCC TCC ACC	12698
Asp Val Pro Pro Pro Ser Ala Gly Ser Asp Ala Ser His Pro Ser Thr	
4175 4180 4185	
TCC TCC AGC CAG CTG GAT GGG CTG AGC GTG AGC CTG GGC CGG CTG GGG	12746
Ser Ser Ser Gln Leu Asp Gly Leu Ser Val Ser Leu Gly Arg Leu Gly	
4190 4195 4200	
ACA AGG TGT GAG CCT GAG CCC TCC CGC CTC CAA GCC GTG TTC GAG GCC	12794
Thr Arg Cys Glu Pro Glu Pro Ser Arg Leu Gln Ala Val Phe Glu Ala	
4205 4210 4215 4220	
CTG CTC ACC CAG TTT GAC CGA CTC AAC CAG GCC ACA GAG GAC GTC TAC	12842
Leu Leu Thr Gln Phe Asp Arg Leu Asn Gln Ala Thr Glu Asp Val Tyr	
4225 4230 4235	
CAG CTG GAG CAG CAG CTG CAC AGC CTG CAA GGC CGC AGG AGC AGC CGG	12890
Gln Leu Glu Gln Gln Leu His Ser Leu Gln Gly Arg Arg Ser Ser Arg	
4240 4245 4250	
GCG CCC GCC GGA TCT TCC CGT GGC CCA TCC CCG GGC CTG CGG CCA GCA	12938
Ala Pro Ala Gly Ser Ser Arg Gly Pro Ser Pro Gly Leu Arg Pro Ala	
4255 4260 4265	
CTG CCC AGC CGC CTT GCC CGG GCC AGT CGG GGT GTG GAC CTG GCC ACT	12986
Leu Pro Ser Arg Leu Ala Arg Ala Ser Arg Gly Val Asp Leu Ala Thr	
4270 4275 4280	
GGC CCC AGC AGG ACA CCC CTT CGG GCC AAG AAC AAG GTC CAC CCC AGC	13034
Gly Pro Ser Arg Thr Pro Leu Arg Ala Lys Asn Lys Val His Pro Ser	
4285 4290 4295 4300	
AGC ACT TAGTCCTCCT TCCTGGCGGG GGTGGGCCCGT GGAGTCGGAG TGGACACCGC	13090
Ser Thr	
TCAGTATTAC TTTCTGCCGC TGTC AAGGCC GAGGGCCAGG CAGAATGGCT GCACGTAGGT	13150
TCCCCAGAGA GCAGGCAGGG GCATCTGTCT GTCTGTGGGC TTCAGCACTT TAAAGAGGCT	13210
GTGTGGCCAA CCAGGACCCA GGGTCCCCTC CCCAGCTCCC TTGGGAAGGA CACAGCAGTA	13270

FIGURE 1R

FIGURE 1S

TTGGACGGTT TCTAGCCTCT GAGATGCTAA TTTATTTCCC CGAGTCCTCA GGTACAGCGG 13330
GCTGTGCCCCG GCCCCACCCC CTGGGCAGAT GTCCCCCACT GCTAAGGCTG CTGGCTTCAG 13390
GGAGGGTTAG CCTGCACCGC CGCCACCCTG CCCCTAAGTT ATTACCTCTC CAGTTCCTAC 13450
CGTACTCCCT GCACCGTCTC ACTGTGTGTC TCGTGTCACT AATTTATATG GTGTTAAAT 13510
GTGTATATTT TTGTATGTCA CTATTTTCAC TAGGGCTGAG GGGCCTGCGC CCAGAGCTGG 13570
CCTCCCCCAA CACCTGCTGC GCTTGGTAGG TGTGGTGGCG TTATGGCAGC CCGGCTGCTG 13630
CTTGGATGCG AGCTTGGCCT TGGGCCGGTG CTGGGGGCAC AGCTGTCTGC CAGGCACTCT 13690
CATCACCCCA GAGGCCTTGT CATCCTCCCT TGCCCCAGGC CAGGTAGCAA GAGAGCAGCG 13750
CCCAGGCCTG CTGGCATCAG GTCTGGGCAA GTAGCAGGAC TAGGCATGTC AGAGGACCCC 13810
AGGGTGGTTA GAGGAAAAGA CTCCTCCTGG GGGCTGGCTC CCAGGGTGGA GGAAGGTGAC 13870
TGTGTGTGTG TGTGTGTGCG CGCGCGCAG CGCGAGTGTG CTGTATGGCC CAGGCAGCCT 13930
CAAGGCCCTC GGAGCTGGCT GTGCCTGCTT CTGTGTACCA CTTCTGTGGG CATGGCCGCT 13990
TCTAGAGCCT CGACACCCCC CCAACCCCCG CACCAAGCAG ACAAAGTCAA TAAAAGAGCT 14050
GTCTGACTGC 14060

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Polyclonal antibodies to domain specific polycystin fusion proteins

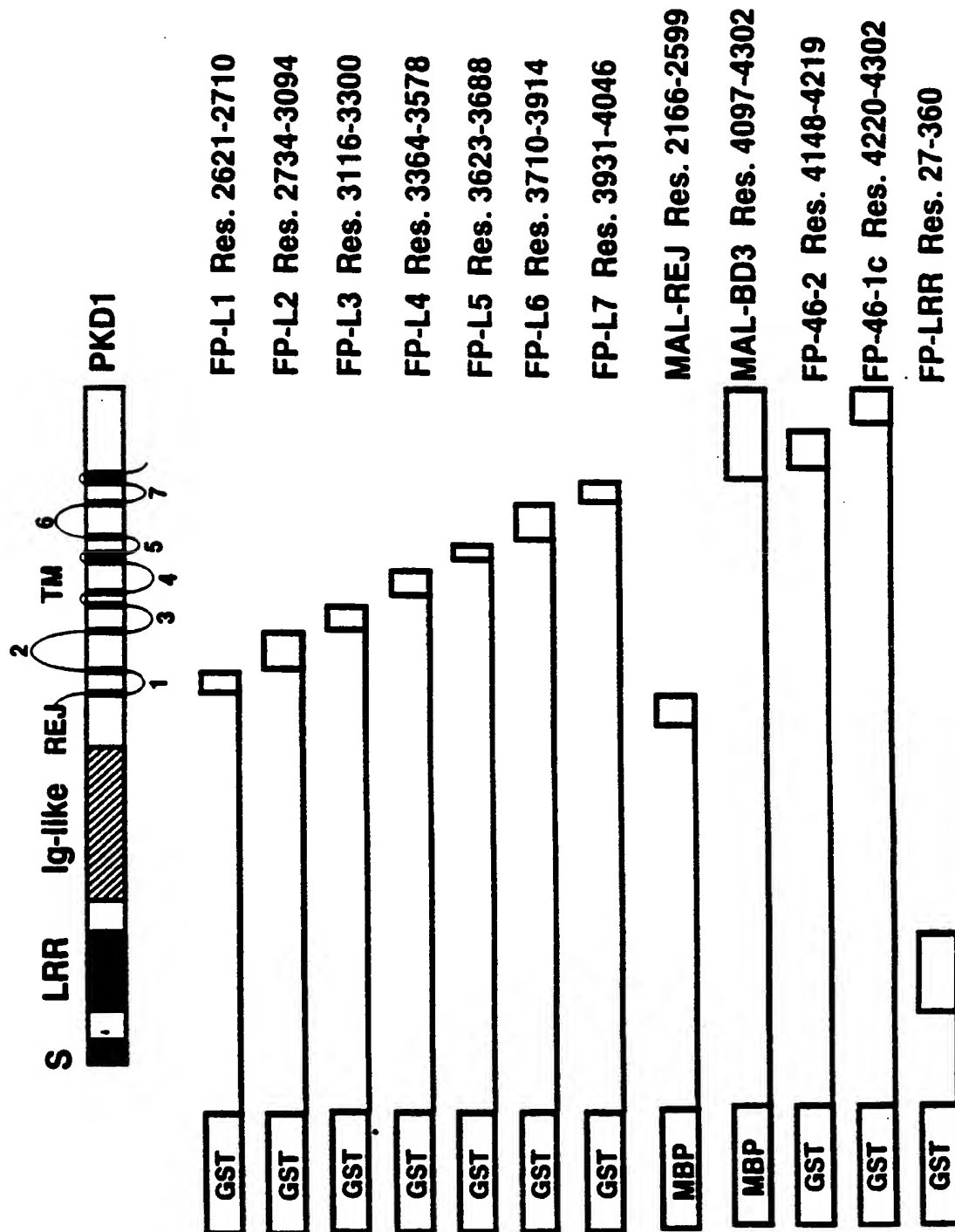
WO 00/24780

20 / 35

1830506

PCT/US99/25091

FIGURE 2



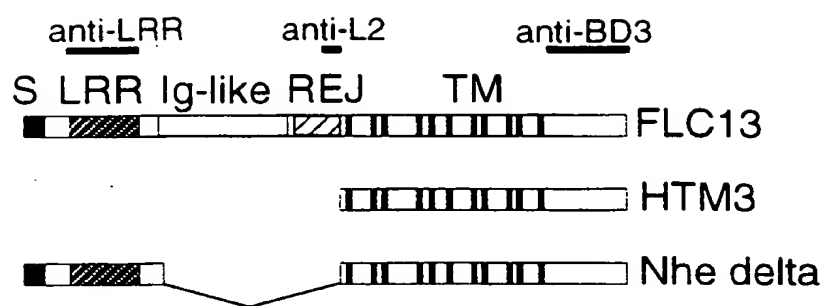
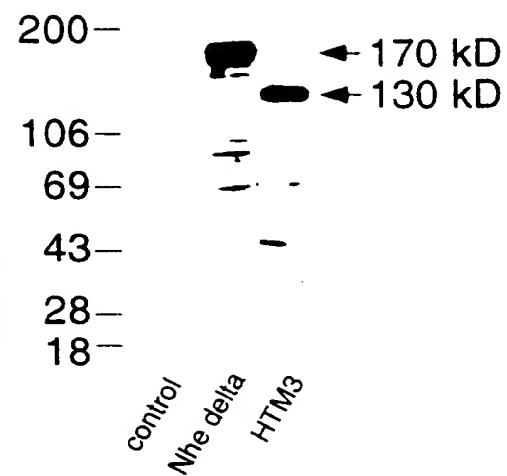
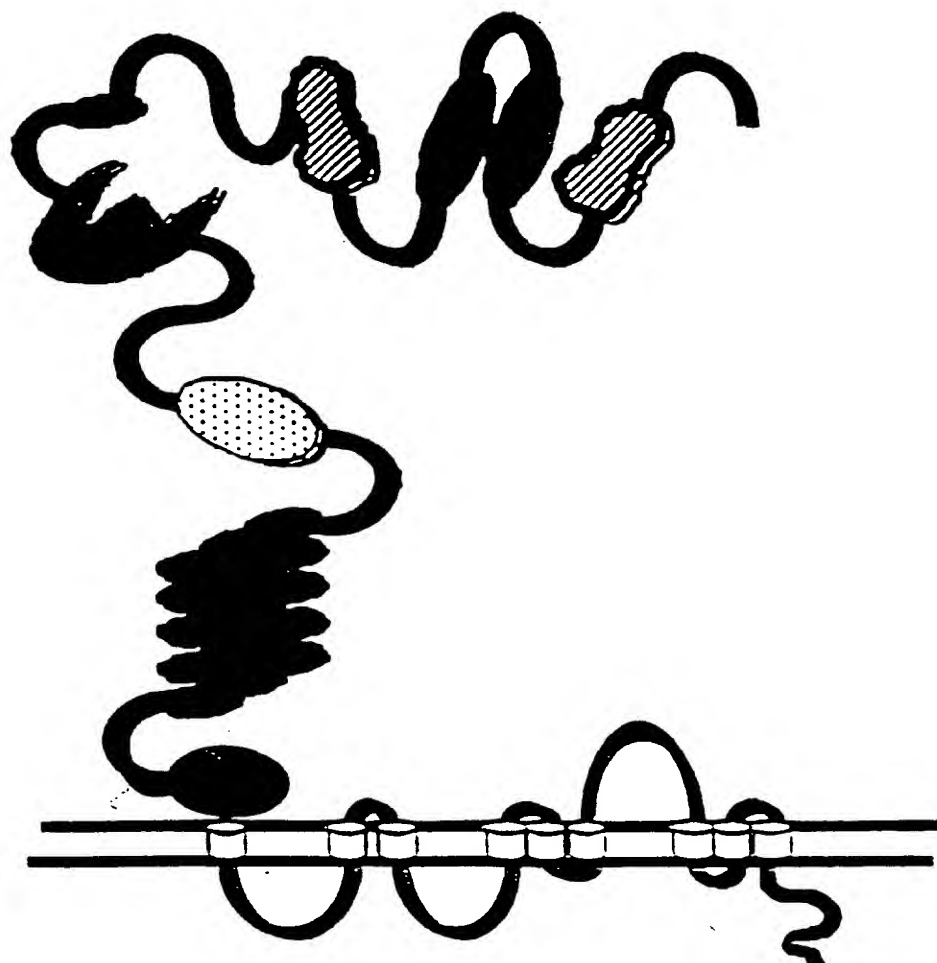
a**b****FIGURE 3**

FIGURE 4

**KEY**

N - amino flanking region

C - carboxy flanking region



LRR - leucine-rich repeats



Ig-like domains



C-type lectin domain

REJ - domain with homology
to the receptor for egg jelly

LDL - like domain



TM - putative transmembrane region

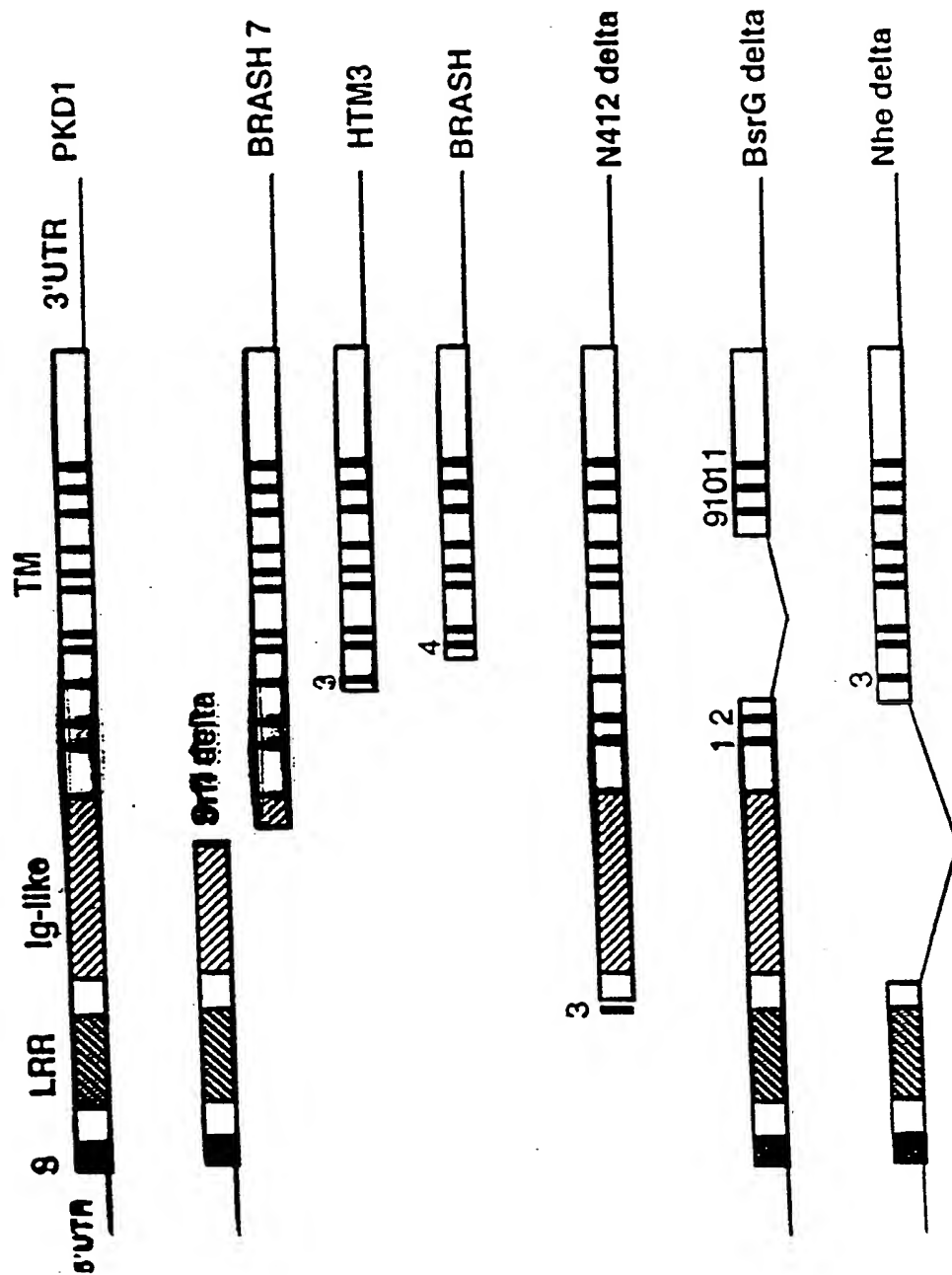
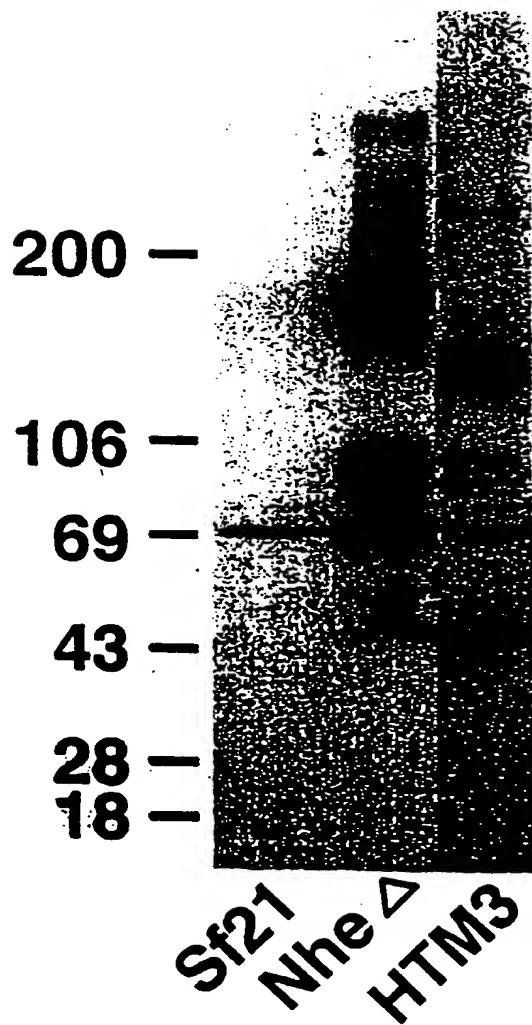


FIGURE 6



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FIGURE 7

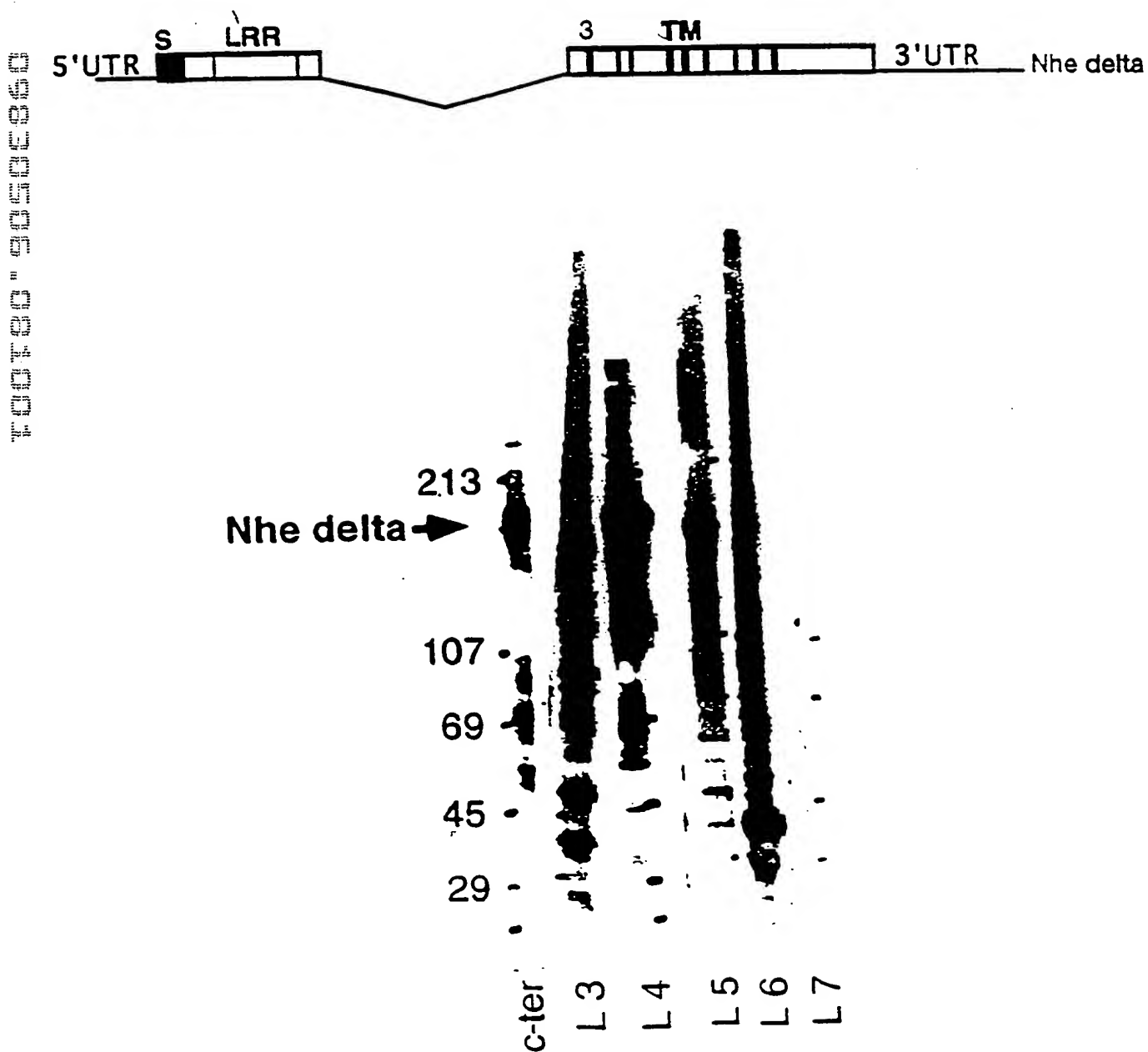


FIGURE 8

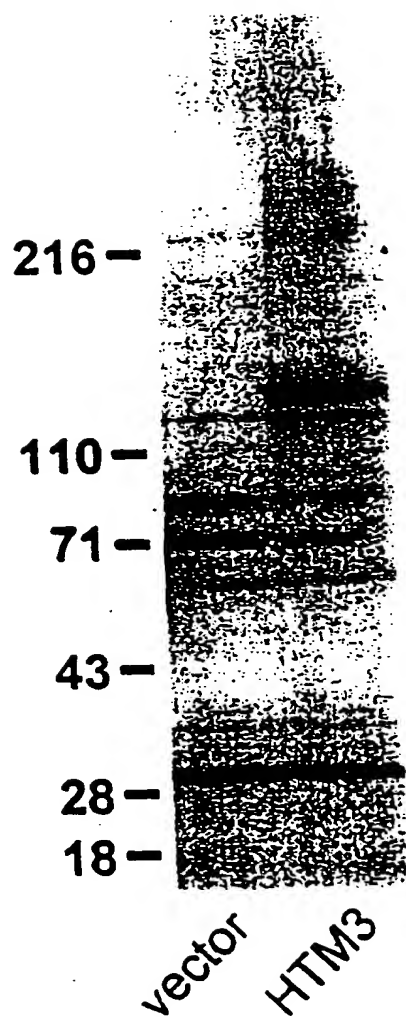
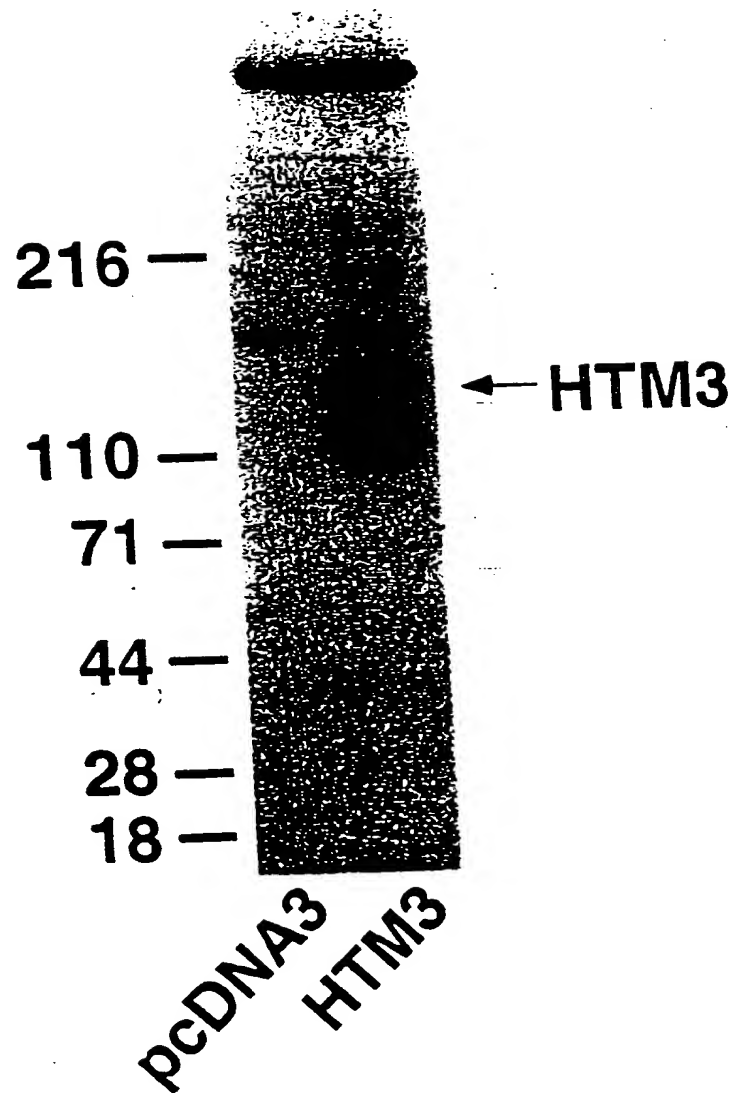


FIGURE 9



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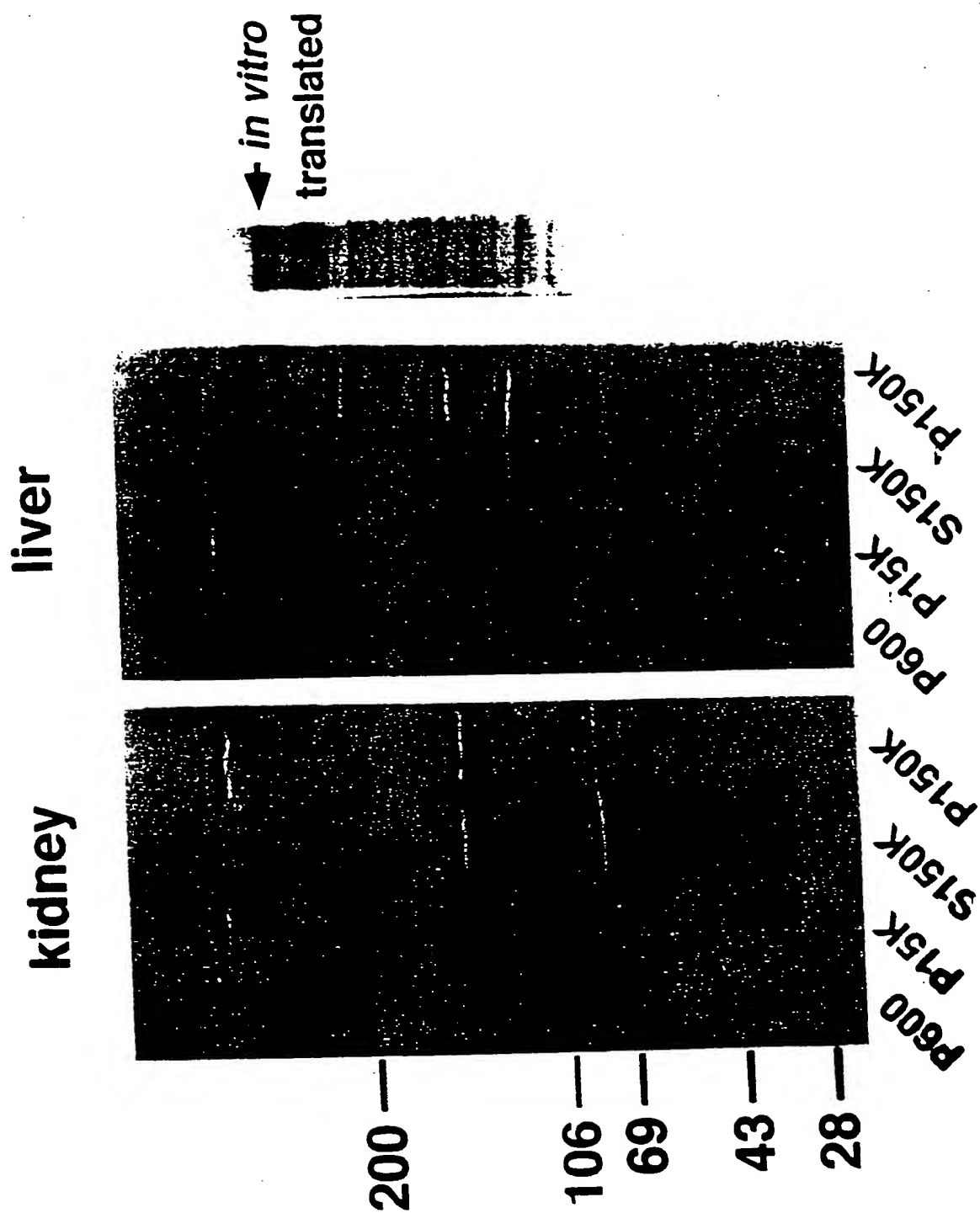


FIGURE 10B

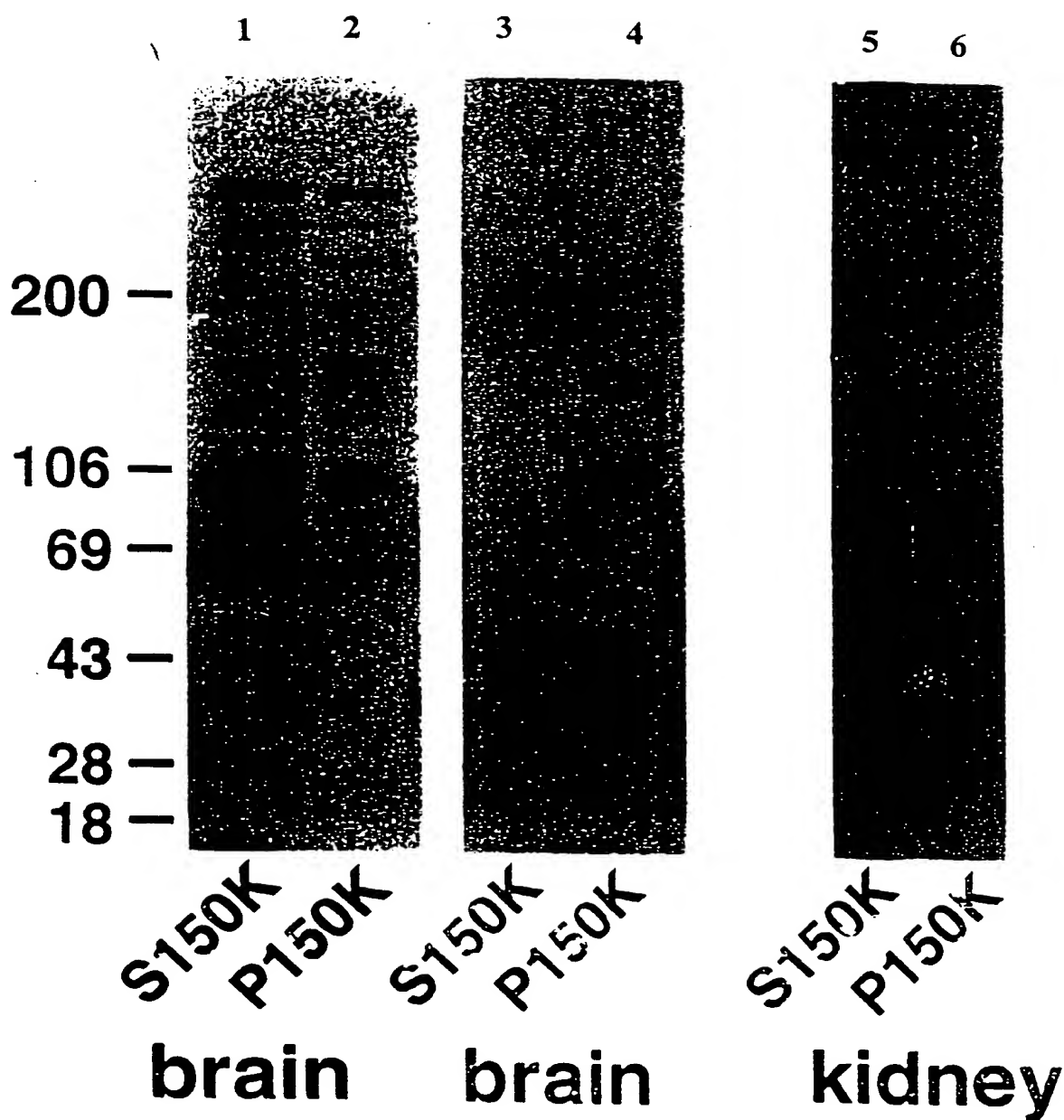


FIGURE 10C

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brain

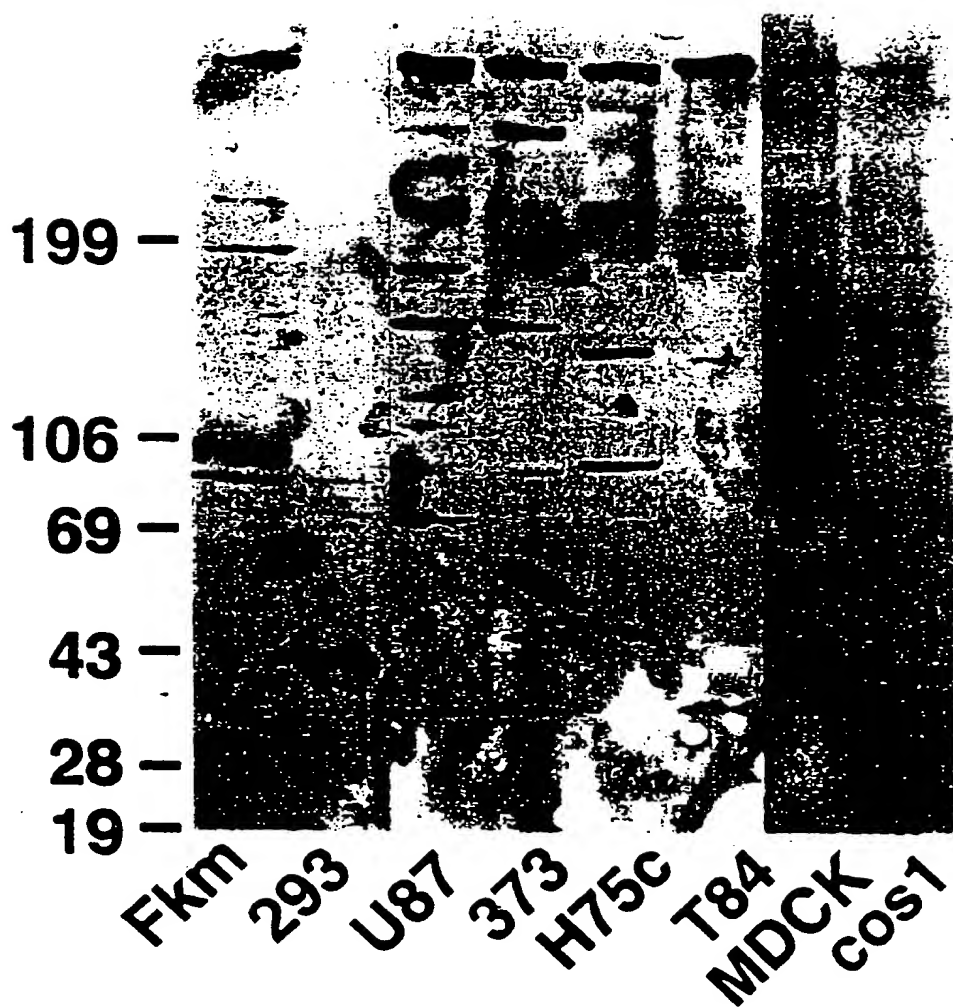
kidney

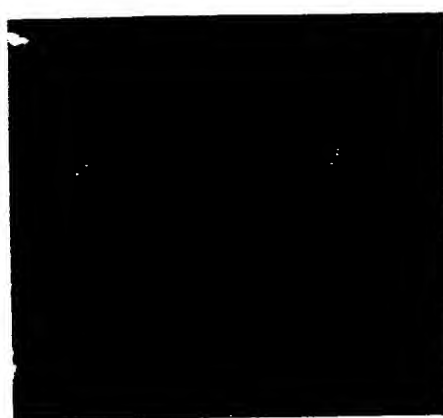


200-
111-
73-
47-
28-

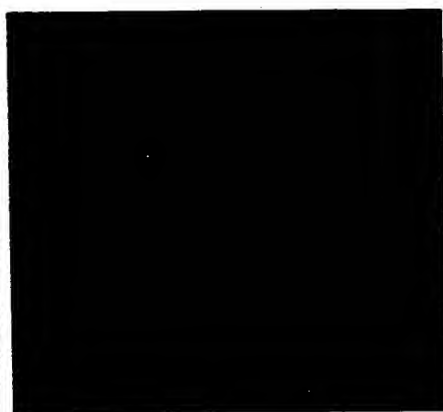
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S150K KCl
P150K KCl
S150K KCl
P150K
S150K KCl
P150K KCl
S150K KCl

THE

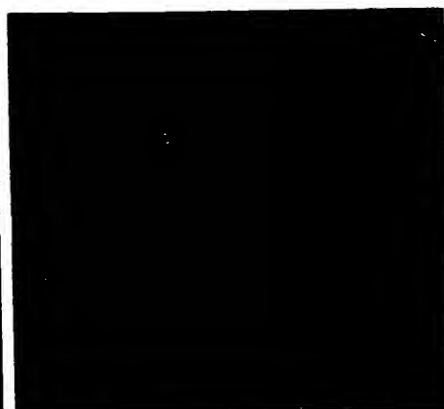




anti-LRR



anti-L2



anti-BD3

FIGURE 11

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FIGURE 12

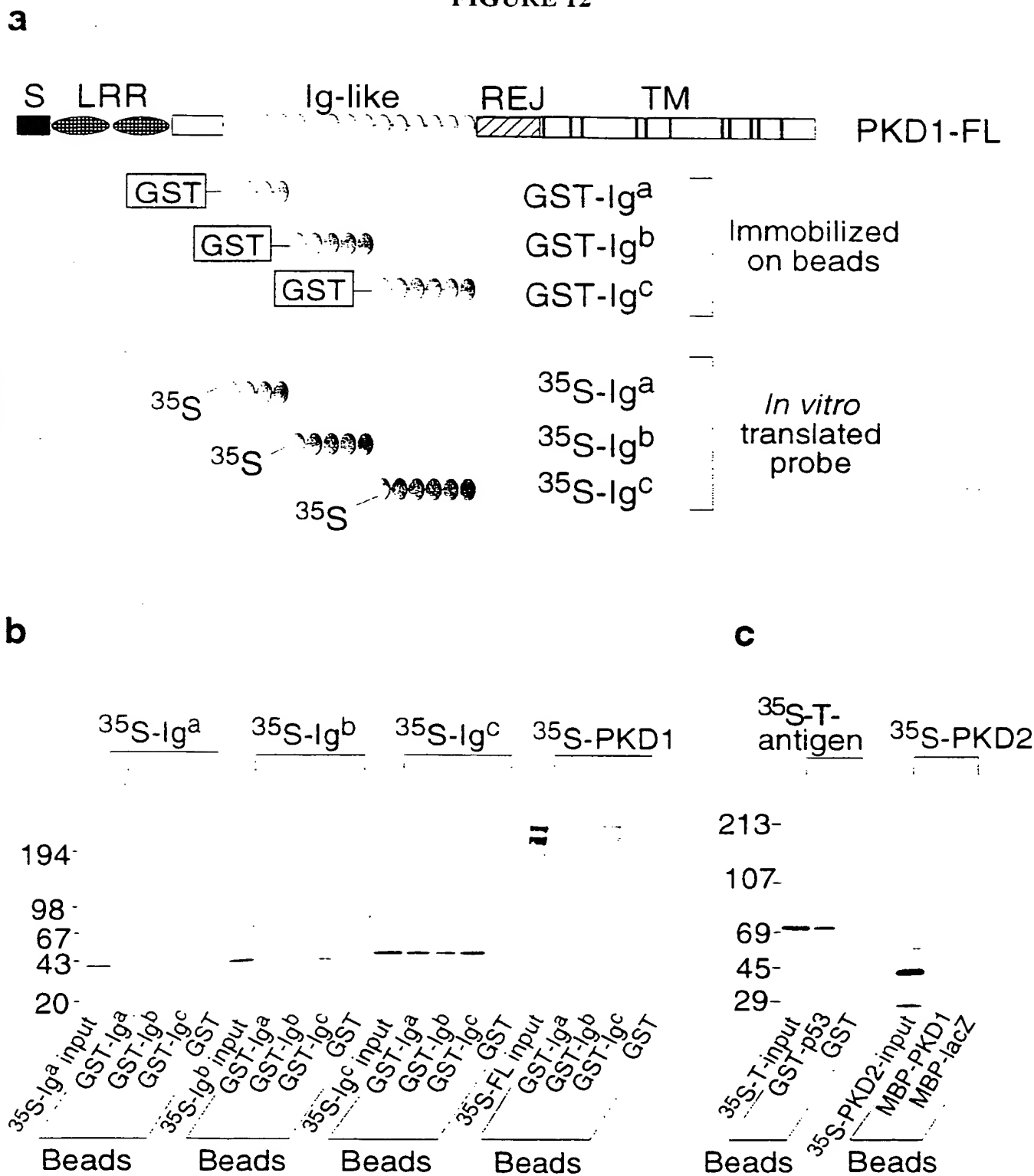
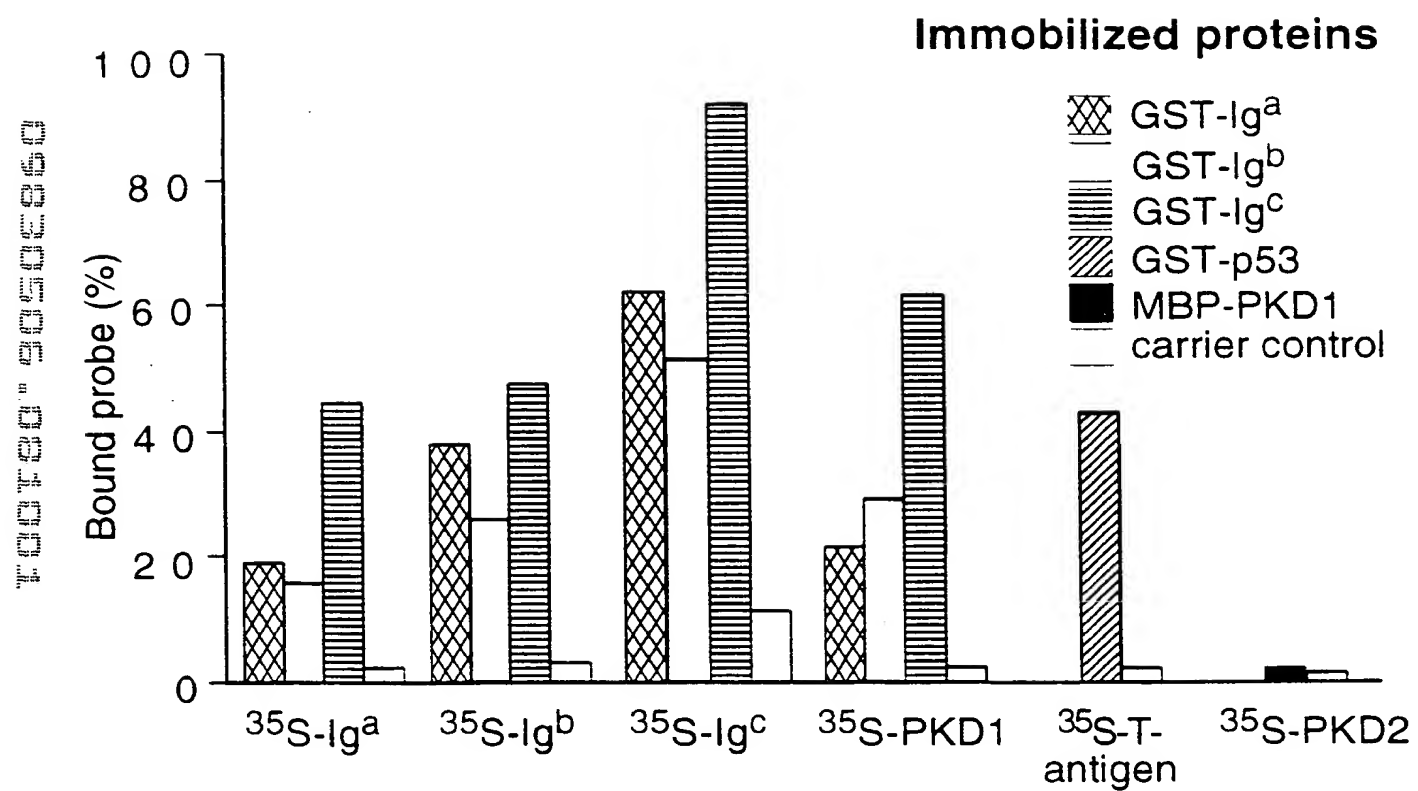


FIGURE 13



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FIGURE 14

media alone

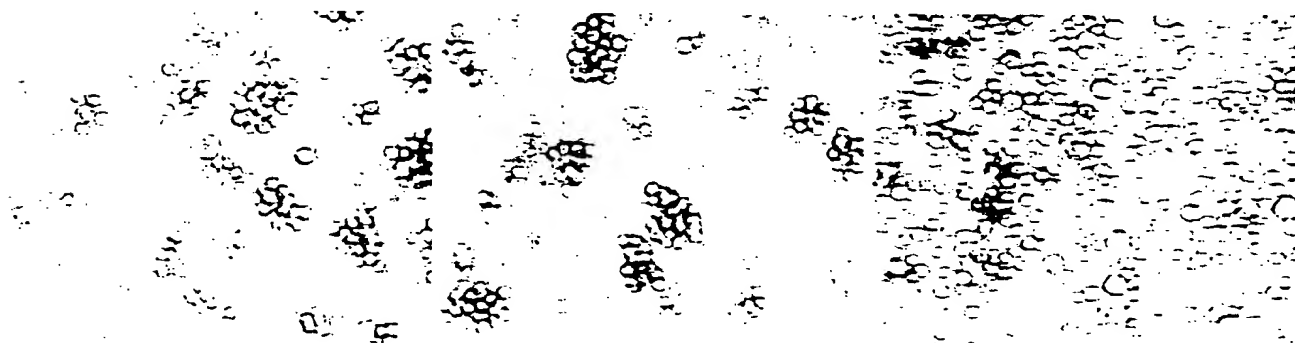
media + GST

media + GST-Ig^{abc}

a



b



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